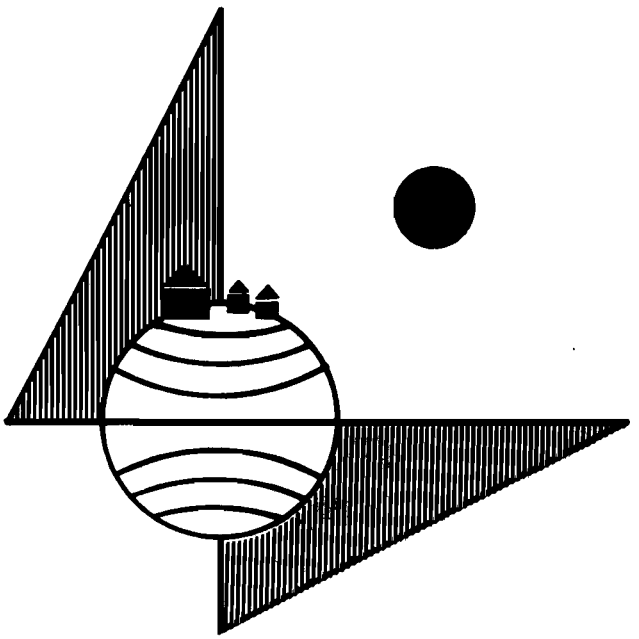
Barrow Plan



JULY 1970

CITY OF BARROW

CITY COUNCIL

Wyman Panigeo—President
William Neakok—Secretary
Lester Suvlu—Treasurer

Jacob Adams—Councilman
Jerry Crow—Councilman
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Wesley Aiken—Councilman

Doreen Itta—City Clerk

CITY OF BARROW

COMPREHENSIVE DEVELOPMENT PLAN

Prepared for the City of Barrow by
The Alaska State Housing Authority

July, 1970

The preparation of this report was financed in part through a comprehensive planning grant from the Department of Housing and Urban Development.

ABSTRACT

TITLE:	Barrow Comprehensive Development Plan
AUTHOR:	Alaska State Housing Authority
SUBJECT:	History Physical Setting People – Population Dynamics, Health and Social Problems Present and Future Land Use and Streets Housing Economy Transportation and Communication City Administration and Facilities Federal and State Coordination
DATE:	July, 1970
LOCAL PLANNING AGENCY:	Alaska State Housing Authority
SOURCE OF COPIES OF DOCUMENTS:	Input Section, Clearinghouse for Federal, Scientific and Technical Information 2285 Port Royal Road Springfield, Virginia 22151 Alaska State Housing Authority P. O. Box 179 Anchorage, Alaska 99501
HUD PROJECT NO.:	P–43
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ABSTRACT:

Barrow is the northernmost city in the United States. It is primarily an Eskimo community – more affluent than many other Native communities in Alaska, but still far behind the standard of living in non-Native urban areas of the state.

This plan is geared to the next 10 years in Barrow's future. It is impossible to look much beyond that point. Barrow has spirited Native leaders, but it also has critical physical, economic, administrative and social problems. These demand immediate attention.

The two planning proposals given the highest priority are:

1. The coordination of all the federal and state agencies involved in the community.

2. Local participation by Barrow residents and leaders in future agency decisions.

Alaska STATE HOUSING AUTHORITY

The Honorable Wyman Panigeo
President of the Council, and
Barrow City Council
Barrow, Alaska 99723

Gentlemen:

In response to your request, we are pleased to submit this Comprehensive Development Plan for the City of Barrow. We of the ASHA staff and Board of Directors were stimulated by the unique character of your community as this plan was prepared. As the northernmost city in the northernmost state, Barrow tends to symbolize the challenge and the promise of America's last frontier.

The recommendations in this report are based on a thorough analysis of your community and a concerned projection of future growth and change. Members of our staff have been frequent visitors to Barrow during the past year. Through formal meetings, informal conversations, a house-to-house survey, letters and telephone calls, there has been a rather free exchange of ideas between the residents of Barrow and our staff. Hopefully, this plan will serve as a basis for continuing discussions about Barrow at the local, state and federal levels.

We wish to extend our sincere appreciation to the private citizens and public officials who contributed to the planning process.

Sincerely,

ALASKA STATE HOUSING AUTHORITY

Robert H. Schenker
Executive Director

TELEPHONE 272-1471 • BOX 179 • ANCHORAGE, ALASKA 99503

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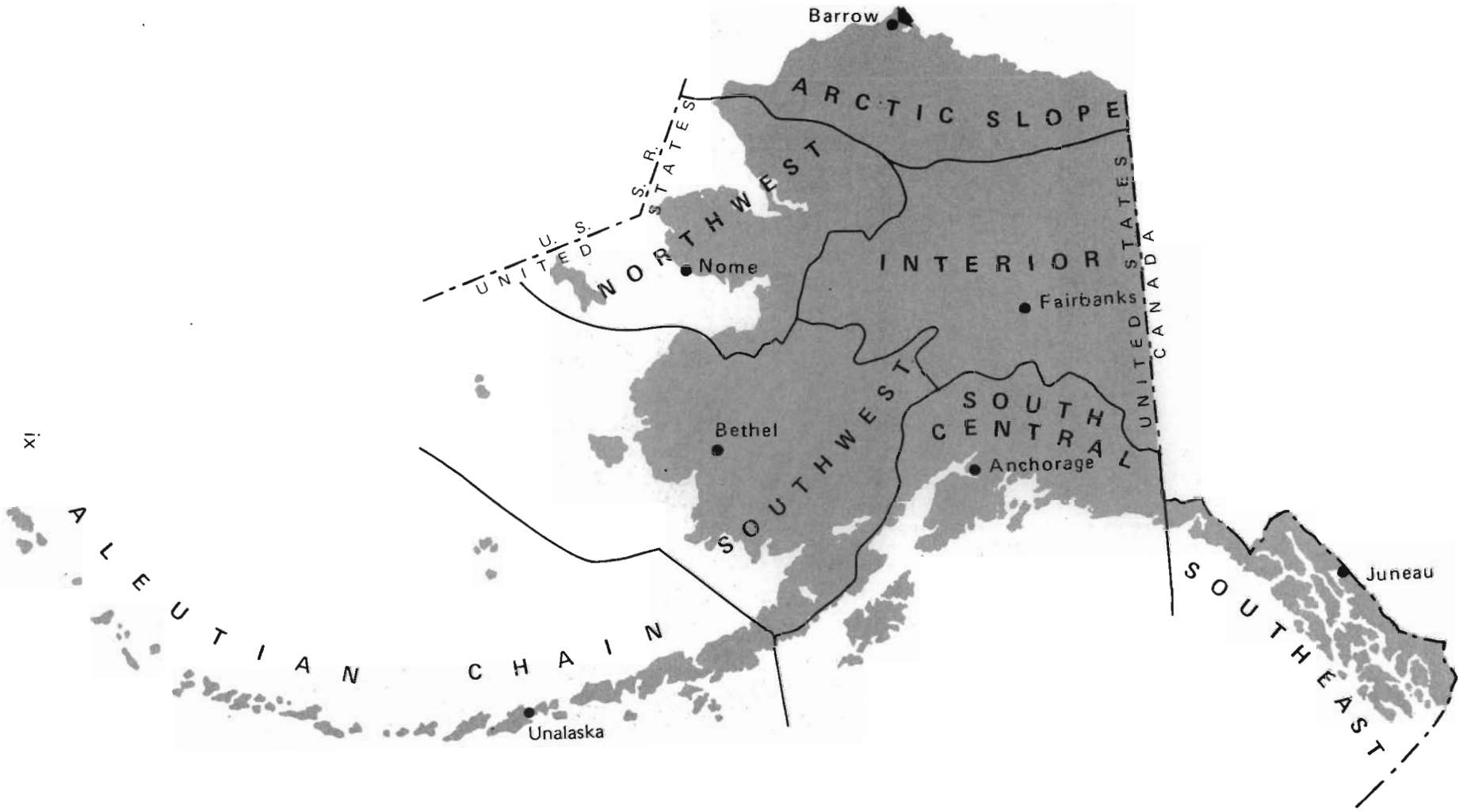
TABLES

MAPS AND ILLUSTRATIONS

Barrow was a quiet town
and the moon shine like million of diamond.
When the sun came up
the diamonds were still on the snow.
It make the people look gay and happy.
They were happy
like a little bird flying around.

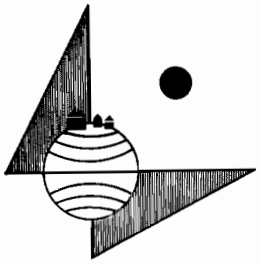
Lucy Adams
Barrow, Alaska



MAJOR ALASKA REGIONS

Naval Arctic Research Laboratory

BARROW – AUGUST, 1969 – LOOKING NORTH.



INTRODUCTION
WHAT IS PLANNING?
HOW CAN IT HELP BARROW?

Planning is nothing more than looking ahead and taking appropriate action. People "plan" to go outdoors in cold weather by putting on warm clothing, even though they are comfortable inside with light clothing. A person traveling from Barrow to Fairbanks or Anchorage must "plan" his trip. He must find out the airline schedules, purchase a ticket and pack a suitcase. Without proper planning, he might miss the plane or have an uncomfortable stay outside.

Just as individuals have to plan ahead, so do cities and villages. Barrow will change in the next 10 years, whether it has a plan or not. But these changes should benefit all the people, not just those who are lucky or those who have their own individual plans.

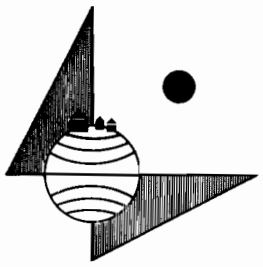
The most immediate advantage of a community plan is that it can be a key which opens doors to a variety of federal and state funds. For example, Barrow can receive up to $2.00 per capita from the state for preparing and implementing a land use plan. It will also be easier for the community to apply for federal assistance on a sewer and water project. Public housing and urban renewal programs usually require that communities have comprehensive plans such as this one.

Another advantage of planning is the ability to relate one decision to another, to analyze the impact of one program on a variety of other situations. Barrow has many broad needs such as health, education and a sound economy. But these are not separate problems, even though separate agencies are now administering them and controlling the funds. It is not enough to cure disease, the cause of disease must be removed and this is largely a matter of education and money. Education must be provided, but sick people cannot learn as well as healthy people, and education will not be as useful if there are no jobs for those who become educated. New occupations will not appear unless the labor force is healthy and educated. The possible complications from uncoordinated health, education and job programs are almost infinite. Uncoordinated housing and recreation programs can further complicate matters.

A plan can help to sort out the confusion. But this document is not the plan for Barrow, it is merely the foundation, an inventory of what Barrow has today and some thoughts on the problems and potentials of the future. The plan for Barrow will be decided by the city council, the people of Barrow and the directors of outside federal and state agencies. Whether these three groups can work together on any one plan is open to question. To the extent that they can, Barrow will be a better place in which to live. Hopefully, local planners or planners hired directly by the local residents will soon be able to assist Barrow. Then the community will have not only plans, but locally controlled planned action.

Changes have been swift in Barrow in the past decade and more changes have occurred even as this plan was written. The usefulness of this plan will decrease sharply every year. Planning should be a continuous process in Barrow and all the residents of the area should be participants in their community's future.

CONCLUSIONS AND RECOMMENDATIONS



This plan is a long and complex document. Although it is clearly written and amply illustrated, it is not necessarily meant to be read from cover to cover. Many readers will flip through the following pages and read a chapter here and a paragraph there. Later on, they may read other bits and pieces.

The purpose of this section is to give a glimpse of the document as a whole and to present the major conclusions and recommendations in a more compact summary. All too many plans are filed away to gather dust on the shelves. They never see the light of day unless discovered by another planner. Planning should not be severed from the one thing that can give it life – its relevance for action.

The following conclusions and recommendations are not presented in the order of priority. The concept of priorities should be applied with extreme discretion in Barrow. Many of the community's needs are urgent, essential and interrelated.

However, one priority clearly stands out because it is the keystone in any attack on Barrow's problems. This is the matter of coordination and participation. Each and every one of the federal and state agencies in and around Barrow must fully coordinate its activities for the ultimate benefit of all concerned. The City of Barrow must become a full-fledged participant in the process.

Specific agencies and personnel have made worthwhile strides in this direction, but the total picture is still one of mass confusion. While the chapter on state and federal coordination appears at the end of this document, references to the local situation appear throughout the text.

The harsh Arctic environment makes each man his brother's keeper. There is no place in Barrow for bureaucratic and/or ethnic divisions. The survival of the immediate region and its people depends on all parties working together.

PHYSICAL SETTING

Land, Water and Permafrost

Barrow is the northernmost city in the United States and its environment can only be classified as extreme. Soils and permafrost are major concerns as the city continues to develop. While the existing community is built on the rather stable foundation of an old river delta, the soil in proposed expansion areas has not been fully evaluated.

Recommendations – Detailed soil studies should be undertaken as soon as possible in the major areas open to townsite expansion. These studies could

be accomplished by the Soil Conservation Service of the U.S. Department of Agriculture, the Corps of Engineers and/or scientists at the Naval Arctic Research Laboratory.

Beach Erosion, Flooding and Gravel Supply

Beach erosion is another serious physical problem facing Barrow. The beach has been coming in at an average of over 10 feet per year. One of the main causes of this erosion is the indiscriminate removal of beach gravel by the city and various federal and state agencies.

The cost estimates for corrective action range into millions of dollars. The Corps of Engineers has concluded that insufficient economic benefits exist to justify federal participation in a beach erosion project.

Recommendations – Future gravel borrow should be restricted to inland areas. The city should work with the Corps of Engineers and the Bureau of Land Management to prohibit future beach borrow. Inland borrow areas should be jointly developed with the Navy.

The Navy and the city should immediately work for temporary relief by pushing or blasting material from the bluffs southwest of the community into the sea. This would increase the amount of sand and gravel available for natural replenishment of the city's and Navy's shoreline. Until a permanent solution is found, the city should discourage any further development of the area between Stevenson Street and the Chukchi Sea.

Barrow should ask the Corps of Engineers to re-evaluate its findings on beach protection measures since the community is extremely short of land. The Corps should also be requested to prepare a flood plain study and assist Barrow residents in obtaining flood insurance.

PEOPLE

Population – Past, Present and Future

Barrow's population at the end of 1969 was about 2,000. This was a gain of over 50 percent in the last 10 years. The population in 1980 will probably be between 2,700 and 4,000 depending on local economic, cultural and recreational opportunities. Over 50 percent of Barrow's population is 14 years old or younger. Barrow's future population growth will depend to a large measure on whether the young people remain in the community or migrate out to larger cities such as Anchorage and Fairbanks.

Natives and Non-Natives

Barrow's population is about 90 percent Native (predominantly Eskimo), but there has been a relatively long period of contact with non-Natives (predominantly whites), starting with the whalers in the late 1800's. A major problem is the gap between the housing and sanitary facilities in the federal compounds and in the community. White perceptions of Native drinking habits and municipal administration do not always conform to the

facts. While there are many areas of cooperation and harmony, relations between the two groups could be improved.

Recommendations — The housing and sanitary facilities of all Barrow residents should be more equitably distributed on some basis other than race. (This recommendation appears in many sections of the plan.)

Since whites have a tremendous influence on culture change in Barrow, particular research on Barrow's white culture is urgently needed.

Education and the Generation Gap

The generation gap is a national problem, but it has some particularly serious implications in Barrow because of the community's extremely young population and the ongoing pressures to change from a Native to a more Westernized culture. There is a growing education gap between the young and old in Barrow and adult education opportunities are almost nonexistent.

Recommendations — This problem is too complex to be handled in any detail in a comprehensive plan. The community desperately needs a local high school and substantial adult education facilities.

Barrow's cultural and social opportunities should be greatly improved to help remove the feeling of isolation among many of the young people.

More local and regional jobs should be provided for local high school and college graduates. A number of these jobs are already in existence, but they are being filled by outsiders.

Mental and Physical Health

Barrow's lack of decent sanitation facilities, high cost of living, etc., make physical health a serious problem, even though the community has a U.S. Public Health Service Hospital and a State Public Health Nurse. Mental health problems are also serious, but most of these problems are now being treated away from the community, if they are treated at all.

Recommendations — The Public Health Service change in emphasis from putting out health "brushfires" to taking a total interest in the community environment should be continued and expanded.

Housing and sanitation facilities should be upgraded as rapidly as possible.

Local resources to diagnose and treat mental health problems are desperately needed. A mental health center should be established under the Community Mental Health Centers Act of 1963. Under this program, the federal government can provide up to two thirds of the total construction costs of buildings to house mental health centers. Grants are also provided to staff the facilities. A center could be integrated with the existing hospital in Barrow. The state should be asked to provide the local share of the project financing.

LAND USE AND STREETS

Existing Land Use and Streets

Barrow is "out in the middle of nowhere" but the city itself is almost as boxed in as many of the central cities in the lower 48. It is surrounded not by suburbs, but by various state and federal reserves and bodies of water. In addition, the Weather Bureau occupies some eight acres of prime land in central Barrow. Commercial uses are fairly well concentrated, but there are too many streets in the downtown area and little room for commercial expansion. Residential areas are fairly well laid out beyond the central area. The street system is poorly designed with generally standard 60-foot rights-of-way, a five-point intersection and no real system of major and minor arteries. The eroding beach is making waterfront development a risky proposition.

Recommendations – Proposed Land Use **(See map on page 67 .)** **Barrow should pull back from its waterfront until a permanent solution is found to the beach erosion problem. This can be done through zoning and possibly with the help of an urban renewal project administered by ASHA. Land lost by the waterfront move will have to be replaced in expansion Blocks "A" and "B" which will be subdivided by the BLM in the summer of 1970. Further land could be obtained if the Weather Bureau would move somewhere to the south of the airport.**

A civic center should be developed in the block which contains the firehall and the Catholic Church. If Barrow ever develops as a major regional government center, the civic center could expand towards the existing Weather Bureau site.

The proposed new high school should be located next to the lagoon in Block "A". Small primary schools could be developed in Browerville and Block "B". Outdoor recreation needs should be taken care of in municipal waterfront reserves and in several inland parks and mini-parks. An indoor recreation facility could be developed on part of the Weather Bureau site, assuming that the site becomes vacant.

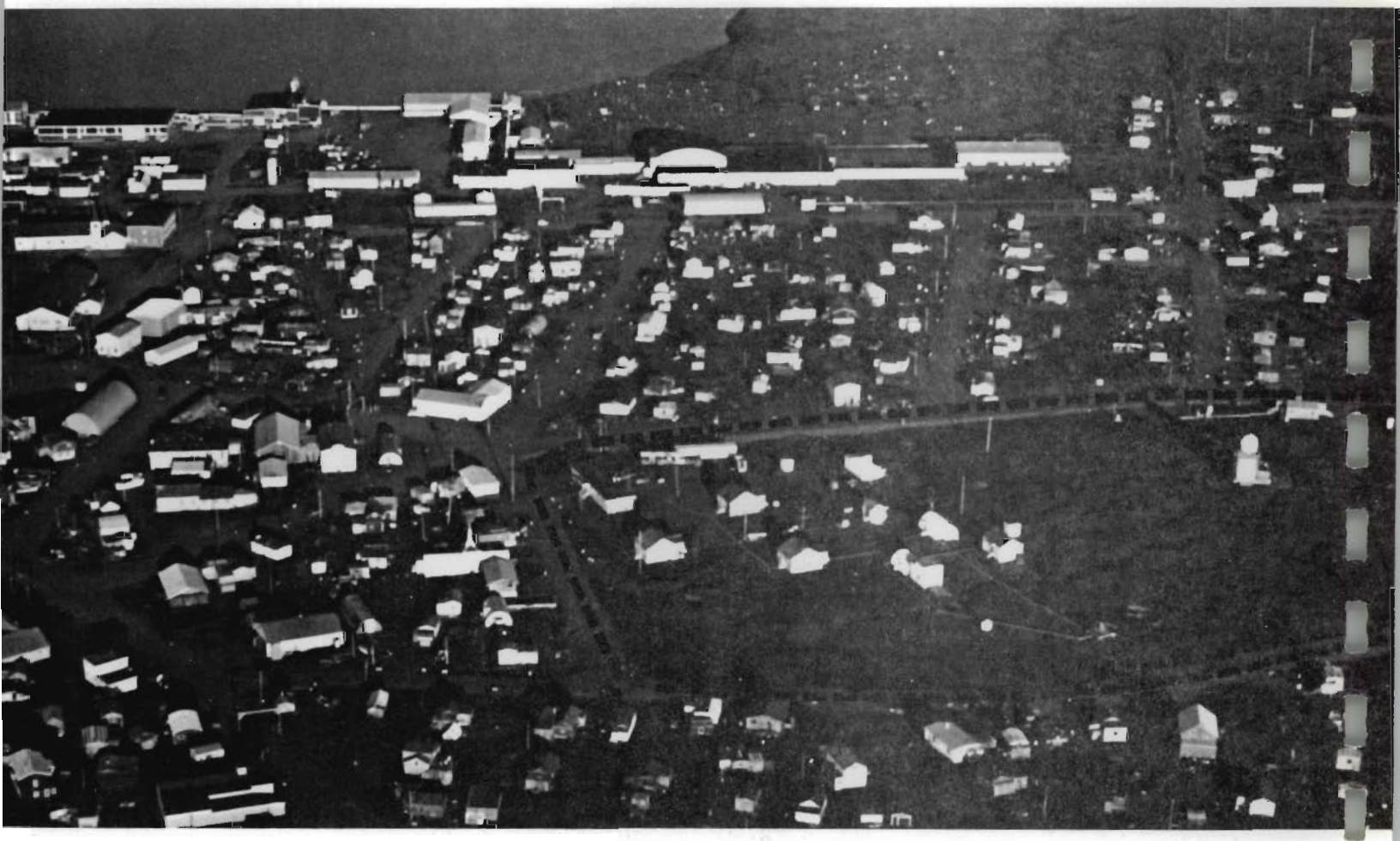
Commercial uses should be clustered in the downtown area and only neighborhood-type facilities should be located in Blocks "A" and "B". Commercial uses such as offices should be mixed with medium density housing in several prime locations, including one proposed development beyond Browerville toward the Navy camp and lab. Land around the existing airport terminal should be reserved for those commercial uses related to aviation.

Throughout the plan there are references made to oil-related developments in Barrow. These should take place south of the airport, in conjunction with possible military and Arctic Research Lab developments. An interim 20-acre oil-related industrial and storage area is proposed on the north side of the runway. A central water-related storage area is proposed between the downtown commercial concentration and the

beach, subject to a more detailed analysis of the erosion and flooding problems in the area.

A system of major streets is proposed to connect the major attractions in Barrow with the airport and the Navy camp and lab. A dead-end street is proposed to eliminate one vehicular access from the dangerous five-point intersection between the Weather Bureau and post office.

Higher density, multi-story buildings should be used wherever possible for commercial and possibly residential development. An urban renewal project could incorporate such buildings into a general renovation and expansion program for Barrow's downtown. It could also assist in the provision of water and sewers, improved streets, sidewalks and larger lots for downtown development.



Naval Arctic Research Laboratory

The Weather Bureau occupies some eight acres of land in the middle of Barrow. (The dashed line denotes a portion of this area.)

HOUSING

Quantity and Quality

Barrow has better housing than most communities, but there are still some 400 local residents living in homes which threaten their health and safety. Only 22 percent of Barrow's housing stock is sound and only about 10 percent of the Native homes have any kind of hot and cold running water.

There is serious overcrowding in Barrow's Native housing stock, with an average of two persons for every room, excluding kitchens in those homes which have a separate room for this purpose.

Obstacles

Lack of credit, high transportation and construction costs and the lack of agency coordination are some of the most serious obstacles hindering housing improvement in Barrow. On top of this, it will probably cost as much, if not more, to serve homes with water and sewer facilities as it cost to build them. Farmers Home Administration is the only agency which has accomplished any major improvement in the local housing stock. The Navy and most other state and federal agencies generally limit their housing efforts to providing accommodations for their imported employees.

Recommendations — Solutions — Farmers Home Administration should continue to seek out the widest number of qualified mortgage applicants.

The Alaska State Housing Authority should seriously consider a minimum of 50 units of federally financed Turnkey housing. This type of development should be coordinated with the housing programs of all area agencies and serious consideration should be given to a central housing factory, similar to the one built in Bethel.

A multi-agency-financed sewer and water system should be installed in conjunction with any major housing development.

A Turnkey project, or some similar federally financed project, should consider one of the major housing needs in Barrow — units for the elderly, especially low-rent units which involve a minimum of tenant maintenance.

A long-range goal in Barrow should be to have local development and ownership of all the housing units. The housing needs of federal and state agencies could be handled by leasing or renting units from local citizens and corporations.

ECONOMY

Economic Base

Barrow has a reputation as one of the richest Eskimo communities in Alaska. Under close scrutiny, however, the community is found to have an unstable and inadequate economic base. While a few traces of subsistence economy remain, the great need is for a steady flow of wages into local hands.

Barrow has long suffered from a boom and bust economy, primarily because of uncoordinated government agency construction programs. The Prudhoe Bay oil field could be another boom, but its impact on the Barrow labor market has been fair to poor. The oil companies have done nothing to further the development of Barrow as a good place in which to live.

Recommendations – Government agencies should coordinate construction and other capital programs to produce a more stable economy. An overall capital improvements program would help, especially if it was developed with the knowledge and advice of the community.

The oil companies should consider Barrow and Prudhoe Bay as parts of a single economic and social region. This would be in their own self-interest, especially if the Naval Petroleum Reserve which surrounds Barrow is ever opened up for private development. Barrow is less than a half-hour plane ride from the heart of the North Slope oil fields. Training and recruitment should be done locally, wherever possible. The oil companies should consider assisting Barrow in local housing, vocational training, sanitation and communications projects.

Tourism

Greater numbers of tourists are coming to Alaska and to Barrow each year. Unfortunately, the present Barrow tours are short and rather poorly organized. They have relatively little impact on the local economy. Local hotel facilities are generally substandard.

Recommendations – A new hotel should be built in Barrow, preferably on the site of the existing Top of the World Hotel. (See page 71 in the proposed land use section.)

Wien Consolidated Airlines and other tour organizers should finance the construction of special tourist attractions in the area.

More local people should be employed in the tourist industry and they should be paid ample wages for their services. Ultimately, the local people could consider setting up a corporation or a cooperative and starting their own tour business.

Welfare

Welfare is a rather minor part of the Barrow economy, but there are apparent pockets of hard and persistent poverty.

Recommendations – Both the Bureau of Indian Affairs and the state welfare caseload should continue to be administered through local offices.

The Work Incentive Program (WIN) should be continued and expanded.

More Barrow residents should be encouraged to use Food Stamps.

State welfare benefits should include subsidies to reflect Barrow's extremely high cost of living.

REGIONAL TRANSPORTATION AND COMMUNICATION

Air Transportation

The only way Barrow can be reached on a year-round basis is by air. The only scheduled air carrier, Wien Consolidated Airlines, recently began direct flights between Barrow and Prudhoe Bay. There is also one air taxi service in Barrow. Barrow residents presently have an exceptionally high cost of living which is closely related to air freight rates. In 1969 more freight arrived by air than by ship.

Recommendations – As the amount of freight to Barrow increases and larger planes make the run, every attempt should be made to lower the air freight rates.

As a regional center, Barrow should be served by at least two scheduled airlines and two air taxi services.

Direct scheduled plane connections to and from Prudhoe Bay should be continued to enable Barrow to obtain the maximum economic benefit from the nearby oil activity.

Water Transportation

Barrow has access to water transportation for only one or two summer months when the ice pack recedes from its shores. Most of the freight comes via the BIA ship North Star. All shipments must be lightered in some distance from the vessel because of the shallow waters off Barrow. This adds considerably to shipping costs.

Recommendations – If icebreaking supertankers such as the Manhattan ever begin to make regular runs through the Northwest Passage, serious consideration should be given to using them to carry supplies to North Slope communities on their trip up from the lower 48.

Regional Roads and Surface Transportation

Barrow has no road connection to another city. There are no roads to any regional attraction other than the Navy lab and camp.

Recommendations – Roads should be developed to Point Barrow and the Rogers – Post Monument. Ultimately, the monument road might be extended to Wainwright.

Road and possibly rail connections between Fairbanks and Barrow should be considered if and when major petroleum and/or mineral development becomes feasible in the Barrow area.

Newspaper

There is no local newspaper in Barrow.

> **Recommendations — A newspaper should be published in Barrow, perhaps with an initial government grant or other assistance to obtain typing and reproduction equipment. The young people in Barrow might be especially interested in such a project.**

Radio and Television

The Armed Forces Radio Network provides the only full-time transmission that can be received by standard band radio. There is a local cable television service, but it is unscheduled and expensive.

> Recommendations — Because of Barrow's remote location, it should be among the first communities included in any satellite television system. The oil companies and the BIA should seriously consider upgrading Barrow's local communications media.

BARROW AS A CITY

Barrow has a number of local leaders — mostly Natives — who are aware of their community's problems and are trying to do something about them. But the city is deficient in almost every type of urban service. The level of incorporation and the local government machinery are seriously inadequate. Regional government and planning are nonexistent. Because of the great number of subheadings in this section and the general deficiencies in almost every area, the following summary is limited to recommendations.

Local Government and Administration

> Recommendations — A full-time city manager should be hired.
>
> Barrow should contact the State Local Affairs Agency in Juneau about the possibility of becoming a first class city and/or part of an organized borough. The state should be asked to analyze all development on the North Slope, especially the oil development, with regard to its tax assessment potential. A comprehensive plan for the North Slope is also needed.
>
> The city should adopt and enforce local versions of the standard housing and construction codes.

City Revenues

> Recommendations — Barrow should investigate various means of increasing its local revenues. Additional municipal revenues can be used to improve city services. They can also be used as seed money to help Barrow better compete with cities such as Nome and Bethel for various federal grants and loans.
>
> **There should be an audit of the city's finances. Preference should be given to a city manager with accounting experience. If such a person is not available, a part-time city treasurer should be hired.**

Police and Fire Protection

Recommendations – Barrow's police force should work with the hospital and the state to provide treatment other than jailing for local residents with alcohol problems.

Police equipment should be upgraded and a police vehicle should be provided.

State and federal agencies should contract with the city for fire protection. This would enable the city to upgrade its fire department.

Schools

Recommendations – The site of the old elementary school should eventually be used as an expansion area for Barrow's downtown commercial uses.

The entire school complex should have a sprinkler system to provide better fire protection.

The state or some form of local government should eventually take over the local school system from the BIA if local residents can be assured that the new system will be of equal or better quality.

Local school facilities should be of a superior quality because the children of Barrow miss a lot of experiences by living in the remote Arctic community.

City Hall and Municipal Buildings

Recommendations – A joint city-state building should be considered. This facility could house the trooper, a jail, and state and city offices. It should be located in Barrow's civic center area.

Airport

Recommendations – Barrow's airport should eventually become the prime facility in the region, taking over as many functions as possible from the Navy airstrip toward Point Barrow.

Navigation aids should be improved and the fueling capability should be greatly expanded.

Major industrial development should take place to the south of the airport, although some interim development could be considered north of the runway.

Long-range planning for the airport should include consideration of polar air navigation aids and a rescue capability at the Barrow airport. An international airport should also be considered, especially with reference to flights over the North Pole.

Recreation

Recommendations – More free outdoor and indoor recreation should be provided. Outdoor park space should be designed to take advantage of the environment, such as creating a big snow drift for sledding, sliding, etc.

The indoor recreation facility proposed by the Barrow Jaycees should become a community project. Federal and state assistance should be sought for such a project.

Water

Recommendations – The BIA should bring in more flash evaporators to increase the supply of distilled water.

Some of this water should be made available to the community.

Detailed engineering studies and economic analyses should be undertaken to recommend the best water (and sewer) system for Barrow.

Serious consideration should be given to a joint city-Navy project involving Ikroavik Lake, the largest fresh water lake in the region.

Sewage

Recommendations — A city pickup service should be started as soon as possible. Honey bucket wastes should be processed by the BIA's sewage treatment plant if this is technically possible.

The Public Health Service's proposed sewer system should be expanded to include a treatment facility.

A special interagency conference should be held in Barrow to discuss the funding and design of a sewer and water system. Invitations should be sent to federal and state agencies which are eligible to financially participate in such projects.

Storm Sewers

Recommendations — The 1964 *Barrow Community Development Study* contained a proposal for storm drains to handle the spring runoff. (See the illustration on page 139.) This proposal should be implemented.

Refuse Disposal

Recommendations — A joint federal-city incinerator should be built to handle the needs of the region. This should be given immediate priority since the federal installations in the area are required to have an incinerator by the end of 1972.

Electricity

Recommendations — A single regional power plant should be developed. This would lower the cost of electricity for all of the consumers.

If a unified power source is not developed, the separate lines of the Navy and the city should be joined to provide mutual backup in case one or the other system fails.

Natural Gas

Recommendations — The gas lines serving the Navy facilities and the city should be looped to provide an emergency backup capability.

The gas lines within the City of Barrow should be buried in accordance with the recommendations made in the 1964 *Barrow Community Development Study.*

BARROW AS A FEDERAL AND STATE COMPOUND – COORDINATION AND PARTICIPATION

Background

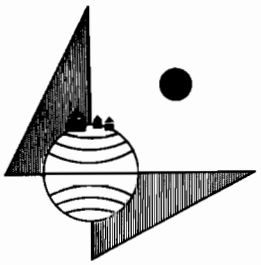
During the past six years, two publications have documented the lack of federal and state interagency coordination and local participation in the development of the Barrow area. While there now is an increased awareness of the situation, the basic problems still remain.

Recommendations (Short-term) – Barrow's Comprehensive Development Plan will be printed by the time the Navy releases its master plan for the lab and camp at an interagency conference in November, 1970. The Navy should work with the City of Barrow and ASHA to coordinate the plans before final printing takes place.

Recommendations (Long-term) – All of the agencies in and around Barrow should prepare a joint capital improvements program, in close cooperation with the Barrow City Council and other local leaders. Projects should be phased to take maximum advantage of the local manpower resources.

Alaska State Housing Authority

Thomas Brower's restaurant in Browerville contains many reminders of Barrow's past. A portrait of his father, Charlie, the famous Barrow whaler and trader, is prominently displayed.



HISTORY

The North Slope of Alaska has a long history of human settlement, much of which is undiscovered or perhaps lost forever. Anthropologists place man in the Arctic as early as 6,000 B.C. The Ipiutak site, located near Point Hope, was first inhabited nearly 2,000 years ago.

There is a national historic site about six miles northeast of Barrow. This is Birnirk, a series of mounds located on an old beach ridge. The site provides materials which describe the development of the Birnirk and western Thule cultures from as far back as 600 A.D.

This section, however, is primarily concerned with events and development in the Barrow area within the past 100 years, the period during which major changes have resulted from contact with the white world. This is not to imply, as some publications do, that historically significant periods only begin when whites come into an area. The purpose of this history is to provide a background for the planning analyses and recommendations. Severe limitations in time and funding make it necessary to select and present information which is most relevant to the present planning problems.

A British captain, Frederick W. Beechey, was one of the first white explorers to visit the area. He visited the northernmost point in Alaska in 1826 and named it Point Barrow in honor of Sir John Barrow, the friend and sponsor of a number of polar expeditions. [1]

According to one source, the community of Barrow derived its name from Point Barrow because local white residents found it easier to pronounce than the Eskimo name of Utkiakvik. [2]

Barrow has a long history of attracting population from the hinterland:

> *Several village units combined into one at the site of the modern Barrow village. This is the location of the older town of Utkiakvik... Like Nuwuk, this village grew and declined in population depending on circumstances. Simpson lists 40 houses and 250 people in 1852–53, with a decline as a result of famine in 1853–54, 40 deaths having occurred...* [3] *(Underlining added.)*

The early report of a famine sets the tone for much of the subsequent history of Barrow. The community has experienced countless disasters and disruptions, many of which resulted from contacts with whites. Barrow's continued survival and relative prosperity are a tribute to the Eskimo culture. Lesser men would have given up long ago.

By 1867, commercial whalers had become a common sight along the Barrow coast. They continued to visit the area until the market declined in 1915. One author made these

1. National Park Service, *Alaska History 1741–1910,* Washington, D.C., 1961, p. 207.
2. U.S. Geological Survey, *Dictionary of Alaska Place Names,* U.S. Government Printing Office, Washington, D.C., 1967, p. 108.
3. Robert F. Spencer, *The North Alaskan Eskimo: A Study in Ecology and Society,* Smithsonian Institute, Bureau of American Ethnology, Bulletin 171, U.S. Government Printing Office, Washington, D.C., 1959, p. 16.

observations on the effect of the whaling industry on North Slope communities:

> *. . . . This industry had dramatically changed Eskimo cultural patterns. With their newly obtained repeating rifles the Eskimo had so reduced the number of land and sea mammals that the old subsistence economy was severely jeopardized. The introduction of whiskey as a trade item had disrupted and demoralized village life. The spread of new diseases such as measles, small pox and influenza, to which the Eskimo had no immunity, and tuberculosis, took a devastating toll of human life. Some small settlements disappeared entirely. Large ones like Point Hope lost as much as 12 percent of their population in one year. In 1900, more than 200 inland Eskimo trading at Point Barrow died of influenza following a visit of a whaling ship. Two years later over 100 Barrow Eskimo died in a measles epidemic.*[1]

Following the decline in commercial whaling, Barrow residents turned to trapping, as fox fur had steadily increased in value. Beginning around 1929, it was possible to sell a white fox pelt for as much as $50. The trapping of foxes as a new primary economic activity had unforeseen social and cultural consequences: (This is a feature of the Barrow economy which has persisted to the present. Serious social and cultural side effects still accompany economic developments.)

> *Once having committed themselves to a cash economy based on trapping, the Eskimo frequently spent much of the long dark winter living in lonely driftwood cabins along the coast, far removed from friends and relatives. The consequent reduction of the cooperative bond between kin and enforced winter isolation quickly affected village cohesion.*[2]

One of the major fur traders was Charlie Brower, a white man who came to the Barrow area as a whaler in 1883 and remained as a resident for the next 57 years of his life. Brower wrote *Fifty Years Below Zero*, a famous book about his life in Barrow.

The trapping industry declined when the fox fur market collapsed because of the 1929 depression. The local Eskimos were forced back into a subsistence economy.

Reindeer herds were introduced into the Barrow area by the federal government to help the economy and to replace some of the depleted game resources. The herd at Barrow, which began with 125 deer around the turn of the century, grew to 30,000 by 1935.[3] But because of overgrazing, poor herding, disease and predators, the herd was only a fraction of its size five years later. By 1950 the reindeer herds had just about disappeared from Northern Alaska.

Various welfare programs became available in the middle and late 1930's. These provided some cash income for the Barrow area. After World War II, the Navy petroleum exploration and the construction of the DEW Line provided many local employment opportunities and all but yanked Barrow into a cash economy. In 1939 the population was 363. By 1950 it had risen to 951.

1. Norman A. Chance, *The Eskimo of North Alaska,* Holt, Rinehart and Winston, New York, 1966, p. 15.
2. Ibid., p. 16.
3. Ibid., p. 15.

Wien Consolidated Airlines

In Brower's restaurant, a picture of Will Rogers is displayed next to a piece of the plane that carried him and Wiley Post to their deaths near Barrow in 1935.

Barrow's history has long been tied in with the airplane. The first plane reached the area in 1927. The harsh Arctic environment was a true challenge to the early aviators. The Barrow area claimed one of the best of the breed – Wiley Post. On August 15, 1935, Post and the famous humorist Will Rogers were killed when their plane crashed shortly after takeoff from a lagoon some 10 miles southwest of Barrow. A monument now marks the spot of the crash. Barrow's state-owned airport is named after the two men.

More recent developments in Barrow have all been in the direction of increased urbanization. The community was incorporated as a fourth class city in 1958. A Bureau of Land Management townsite survey took place in 1963 and a community development study was financed by the Bureau of Indian Affairs and published by the University of Alaska in 1964.

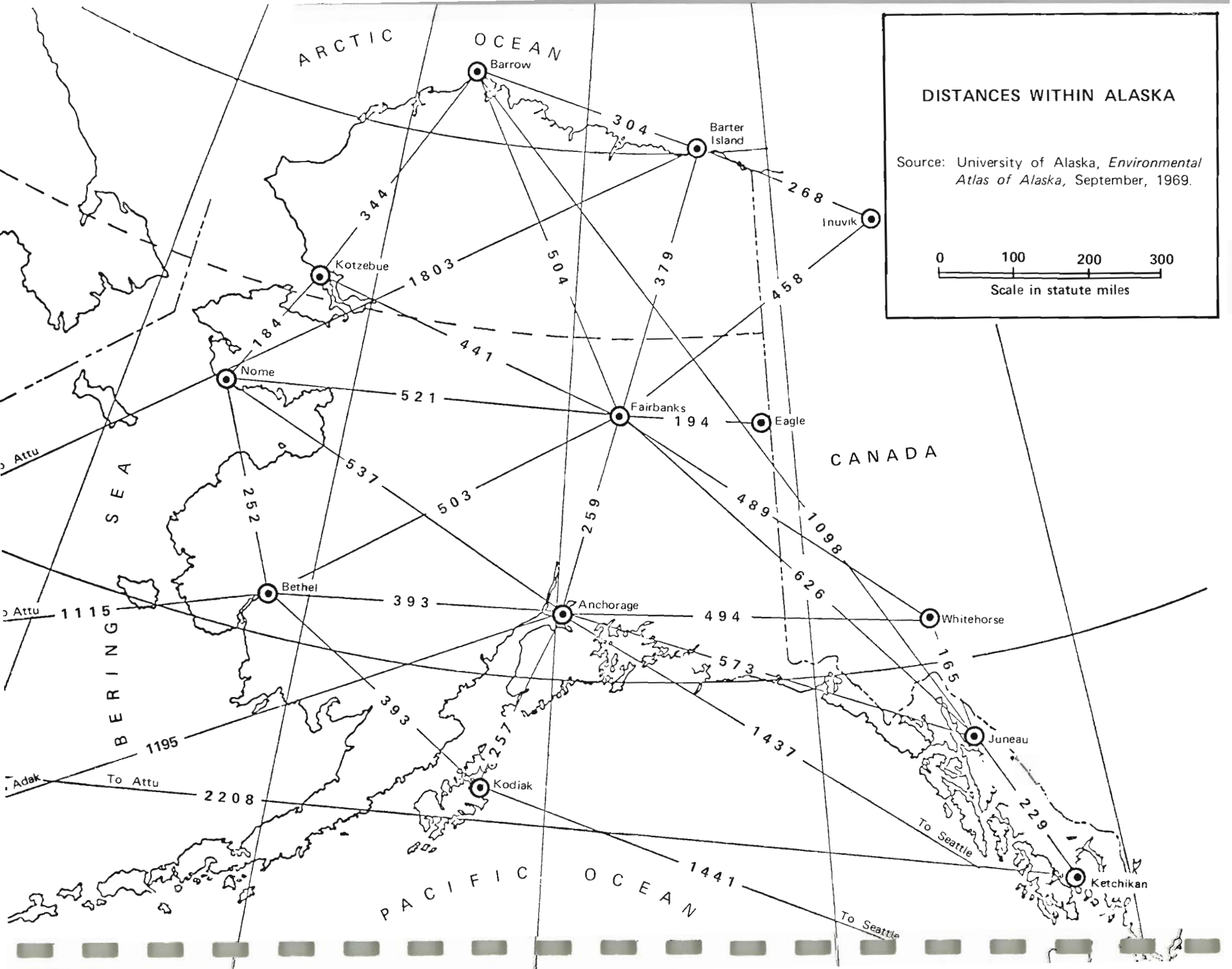
Unfortunately, some of the basic benefits of urbanization have not yet become available to the residents of Barrow. With a population of some 2,000, Barrow is one of the largest communities in the state which still does not have any kind of public water and sewer system. The best housing is reserved for outside government employees. The same goes for many of the local jobs.

Hunting still goes on in Barrow, and the nomadic hunting culture has deep psychological and social roots. But Barrow today has a population concentration without historical precedent on the North Slope. Its continued survival depends on urban benefits outweighing urban costs and problems.

If a history of Barrow is written 100 years from now, it will probably note that the 1970's were a unique and decisive period. The rich oil strikes on the North Slope and the anticipated settlement of the Native Land Claims are major historical events. Their consequences for Barrow, whether beneficial or disruptive, will be major and long-lasting. Lessons from the past should be used as guides for the future.

National Geographic Magazine

Physical Setting


DISTANCES WITHIN ALASKA
Source: University of Alaska, *Environmental Atlas of Alaska,* September, 1969.
0 100 200 300
Scale in statute miles
ARCTIC OCEAN
Barrow
Barter Island
Inuvik
Kotzebue
Nome
Fairbanks
Eagle
Bethel
Anchorage
Whitehorse
Juneau
Kodiak
Ketchikan
CANADA
BERING SEA
PACIFIC OCEAN
To Attu
To Adak
To Seattle
304
344
268
1803
504
379
458
184
441
521
194
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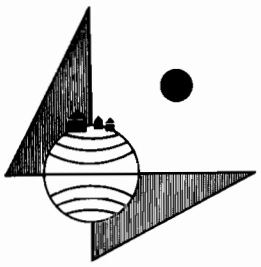


PHYSICAL SETTING

Location

Barrow is the northernmost city (population 2,000) in the United States. It is located on the shores of the Chukchi Sea of the Arctic Ocean at 70° 17' north latitude. This is about one or two degrees farther north than Tromsoe, Norway (population 40,000) and Norilsk, Siberia (population 125,000). Barrow is about 1,300 miles south of the North Pole and 330 miles north of the Arctic Circle. It is interesting to note that because of shorter air routes over the North Pole, Barrow and New York City are almost equidistant from London, England.

Barrow is in a strategic location in Alaska. It is only about 7½ miles southwest of Point Barrow, the farthest north point of land in the United States. Many people mistakenly call Barrow "Point Barrow." Actually the two are separate. Barrow is a city, while Point Barrow is an uninhabited tip of land which juts into the Arctic Ocean.

Land, Water and Permafrost

Alaska's Arctic Coastal Plain begins north of the 600-mile-long Brooks Range, an

Table 1
AIRLINE DISTANCES BETWEEN BARROW AND SELECTED POINTS

Community	Air Miles from Barrow
Fairbanks	504
Prudhoe Bay (Deadhorse Airport)	210
Anchorage (Via Fairbanks)	763
Juneau	1,098
Kotzebue	344
Seattle	2,000
London, England	3,750 (approximate)

Source: *Environmental Atlas of Alaska* and best available information.

extenstion of the main continental mountain system of North America. From the Brooks Range foothills to Barrow, there is about 70 miles of flat tundra. This treeless area was submerged until recent geologic time and it has continuous permafrost. Streams wander at random and there are numerous shallow lakes and marshes. Because the lakes are so shallow, most of the fresh water in the area is high in organic and iron content.

Barrow is located on generally flat terrain with only a slight slope down toward the Chukchi Sea. Where there are no bluffs, the slope of land is so gradual that it is often hard for a person out in a boat to tell where the land ends and the water begins. According to the Navy, about 1,000 feet from shore the average water depth is only six feet, while 2,000 feet out it is only about 12 feet. Starting around the middle of the city's waterfront, there are bluffs and narrow beaches which run about 40 miles southwest down the present coastline. These bluffs are about 20–30 feet high.

Since Barrow is not far south of the edge of the polar ice pack, it has a relatively short period of open water on its seashore:

> *At Point Barrow the pack ice breaks off from the shore ice in June. The shore ice leaves the beach in late July but remains in sight until the middle of August or later. Pack ice may remain on or near Point Barrow until late summer and occasionally remains throughout the summer. Eastward of Point Barrow, the pack ice seldom goes far offshore and ice movement, and therefore coastal navigation along the arctic coast, is controlled primarily by winds.*[1]

Permafrost, or permanently frozen ground, is a major physical factor affecting the development of Barrow. Barrow has a mean annual temperature well below freezing, which provides a favorable environment for permafrost. The greatest recorded depth of permafrost near Barrow is 1,330 feet.[2]

There is an active layer of ground from a few inches to a few feet thick above the permafrost, which thaws in the summer and freezes in the winter. Around Barrow, seasonal temperature fluctuations have been found as far as 60 feet down in the permafrost. The temperature effect of heated buildings resting on the permafrost has been measured to depths well below 50 feet.[3] The amount of temperature variation in permafrost and the depth of the active layer are often determined by the amount of natural surface insulation such as mosses or artificial insulation such as gravel.

An important variation in permafrost is the amount of ice it contains. Permafrost can be heavily laden with gravel or it can contain almost pure ice. Temperature variations in the former do not seriously affect the bearing capacity of the ground. However, if permafrost is little more than frozen water, great care must be taken not to disturb it or buildings and roads may sink almost out of sight. Even when frozen, ice-rich permafrost has the consistency and bearing capacity of soft rock.

1. Philip R. Johnson and Charles W. Hartman, ***Environmental Atlas of Alaska,*** Institute of Arctic Environmental Engineering, University of Alaska, College, Alaska, 1969, p. 44.
2. Ibid., p. 22.
3. Dr. Max C. Brewer, "Some Results of Geothermal Investigations of Permafrost in Northern Alaska," *Transactions, American Geophysical Union,* February, 1958, pp. 19–20.

Bureau of Indian Affairs

Ice cellars are constructed in the permafrost. Note the auger in right foreground.

While Barrow proper and the airport are built on high gravel permafrost left behind by an old river delta, at least one qualified observer has estimated that much of the expansion area around the city is ice-rich permafrost.[1] Unfortunately, although several soil studies have been made around the Naval Arctic Research Laboratory some four or five miles from Barrow, no detailed studies have been made of the land in the immediate vicinity of the city.

Most of the new construction in Barrow is on rather short pilings, since the gravel-rich permafrost is a rather stable foundation. Many of the new homes, such as those financed by the Farmers Home Administration, can be built on three or four-foot pilings. Some homes are built on rafts or skids of timbers which are laid on the ground. These buildings will need flexible sewer and water line connections as there is some movement of the underlying ground. The Public Health Service Hospital, which was completed in 1965, is built on wood pilings which penetrate from five to nine feet into the permafrost.

As previously mentioned, gravel can be placed over the active layer of the permafrost to provide insulation against thawing and frost heaving. The roads in Barrow are built on several feet of gravel and silt which generally impedes drainage of the surrounding land. The hospital and the school are constructed on beach gravel, as is the dam of gravel-filled oil barrels separating the water and sewage lagoons. Additional gravel was taken from the beach to provide a base for the new paved airstrip. While gravel has thus been useful in construction on permafrost, its removal from Barrow's beaches has resulted in severe erosion problems. (See the section on beach erosion starting on page 32.)

Barrow should immediately press agencies such as the Soil Conservation Service of the U. S. Department of Agriculture, the Army Corps of Engineers and the Naval Arctic Research Laboratory to proceed with detailed soil surveys of potential building sites around the city. Of special interest would be the condition of the soils in expansion areas "A" and "B". (See map on page 67.)

While detailed soil surveys are beyond the scope and budget of this plan, it should be noted that much of the land in the existing townsite of Barrow has proven bearing capability. The uncertainty about the soils further out from the city might prompt Barrow's leaders to consider a policy of more concentrated and efficient land use. (See details in the land use section starting on page 57.)

Vegetation and Wildlife

At the risk of repeating a cliche, it should be emphasized that the North Slope has a fragile ecology. It may take nature hundreds of years to lay a few inches of mosses and lichens on the Arctic tundra, but it takes a tracked vehicle only a few minutes to start a deep gorge in uninsulated permafrost.

There are no trees around Barrow, except for a few stunted willows that may grow as high as 12 inches. There is little plant life available for human consumption. In the summer, flowers of the rose, anemone, mustard,

1. Statement by Dr. Max Brewer of the Naval Arctic Research Laboratory at the Barrow Interagency Conference held in Barrow, Alaska, February 10–13, 1970.

Table 2
WILDLIFE POPULATIONS
ARCTIC SLOPE REGION

Species	Population	Harvest		1958-1968 Trend	Probable Future Trend	Remarks
		Average Yearly	Estimated Value			
BIG GAME						
Caribou	450,000	15,000	$750,000	Static	No change	
Moose	Uncommon	Low		Increase	Increase	
Dall Sheep	Common	40	20,000	Static	Increase	
Black Bear	Uncommon	Trace		Static	No change	
Grizzly Bear	Common	Low		Increase	Increase	
Polar Bear	Common	Under 100	200,000	Increase	Increase	
FURBEARERS						
Beaver	Rare	Trace		No change		
Muskrat	Rare	Trace		No change		
Lynx	Uncommon	Trace		No change		
Marten	Uncommon	Trace		No change		
Mink	Uncommon	Trace		No change		
Land Otter	Uncommon	Trace		No change		
Weasel	Abundant	Few Hundred		No change	Increase	
Wolverine	Common	Under 100		No change	Increase	
Arctic Fox	Abundant	900	15,300	No change		
Red Fox	Common	200	200	No change		
Coyote	Uncommon	Low		No change		
Wolf	Common	100	10,000	Increase	Increase	
MARINE MAMMALS						
Bearded Seal	Abundant	650	16,250	No change	No change	
Harbor Seal	Common	200	5,000	No change	No change	
Ribbon Seal	Rare	Trace		No change	No change	
Ringed Seal	Abundant	4,000	100,000	No change	No change	
Walrus	Common	200	40,000	No change	No change	
WATERFOWL						
Ducks	250,000	40,000*	124,000	Static	Increase	*Waterfowl harvests are continental totals.
Geese	150,000	30,000	138,000	Static	Increase	
Swans	500			Static	No change	
Other Mammals						
Other Birds	Cranes					

Source: U.S. Department of the Interior, Bureau of Sport Fisheries and Wildlife, Anchorage, Alaska.

saxifrage and aster families cover much of the tundra in a brief blaze of color.

Animal life on the North Slope is more notable than plant life, although many of the species (such as caribou and whales) are migratory rather than permanent residents. The major value of wildlife is for subsistence and sport hunting purposes rather than for commercial development.

Of prime importance to an Arctic coastal town such as Barrow is the abundance of marine mammals:

> *The most impressive in size are the immense bowhead whale, measuring from forty-five to sixty feet in length. These animals make annual migrations along the western coast of north Alaska from Point Hope to Point Barrow and*

Wien Consolidated Airlines

THE FRUITS OF A SUCCESSFUL WHALE HUNT.

eastward into the Beaufort Sea. The smaller beluga or 'white whale' follow much the same summer route as the Bowhead. Walrus and ugrook (large bearded seal) are common to the northwest coast, and less so east of Point Barrow. The most numerous and widespread sea mammals are the ringed, bearded and harbor seal. For centuries these animals have formed the nucleus of the maritime Eskimo subsistence economy. Such fish as the whitefish, tomcod, salmon trout and grayling also frequent these waters and are used by the Eskimo, particularly during the summer season.[1]

Besides the caribou, other land animals include the polar bear, fox, wolf, wolverine, Arctic hare, lynx, the smaller marmot, vole and lemming. Birds such as the ptarmigan, duck and goose visit the area in all seasons except winter.

State Fish and Game Department experts say that the rapid population growth of Barrow does not pose any immediate threat to the neighboring wildlife. Their observation is that substantial full-time employment (such as that found in Barrow) reduces the dependence on wildlife resources and therefore the numbers taken. While it is true that subsistence hunting continues in Barrow,

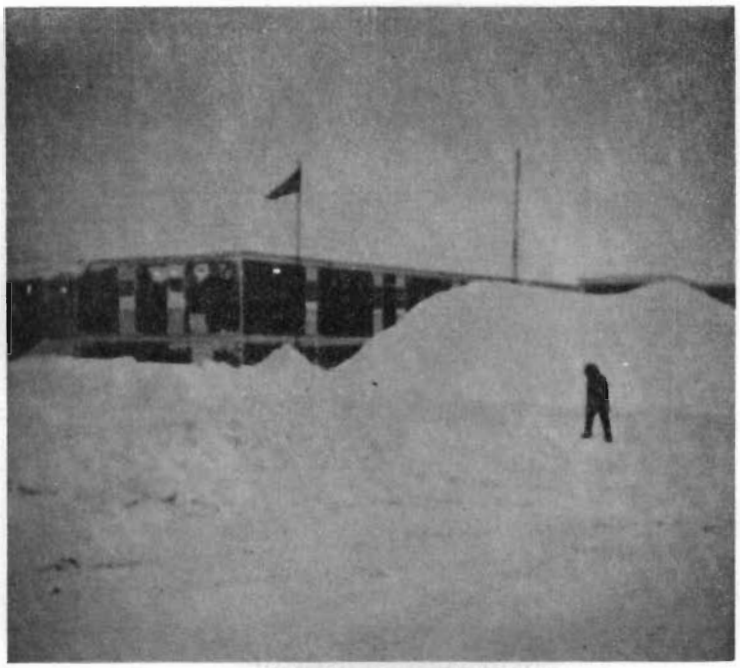
Table 3
NATIVE SUBSISTENCE FOOD GATHERING ACTIVITIES
BARROW, ALASKA
1969

Activity	Percentage of Households Participating*
Hunting	44.5
Fishing	28.2
Trapping	14.9

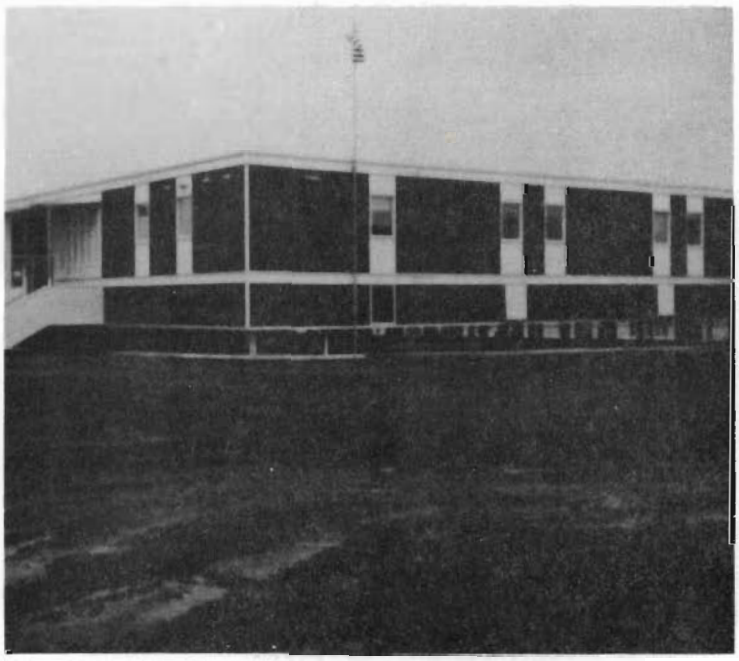
* Since households could and did participate in all three of these activities, there is an overlap in the three percentage figures. For example, some households reported that they hunted, while others mentioned hunting and fishing, etc.

Source: ASHA Survey, December, 1969.

1. *The Eskimo of North Alaska,* p. 9.



Alaska State Housing Authority



Alaska State Housing Authority

BARROW HOSPITAL – WINTER AND SUMMER

there does seem to be a trend toward purchasing a considerable amount of food and clothing. Over 90 percent of the Native families in Barrow purchase considerably more than half of the food they eat.[1]

While detailed figures on the number of polar bears, wolves, etc. now present on the North Slope are almost nonexistent, it appears that most of the wildlife in the area will not be threatened by general subsistence hunting. Possible negative effects of increased sport hunting and massive oil-related developments are also uncertain.

One recent study urges a continued concern for Alaska's Arctic wildlife:

> *The Arctic region of Alaska was acquired in an essentially primitive, natural condition. It represents the only land area of this type which still maintains its ecological integrity largely intact. While it is known that petroleum and mineral resources exist, the values of the renewable natural resources also may prove to be exceedingly important to a nation where land without cultural disfiguration is becoming increasingly scarce. The scientific value of a natural unchanged area could be tremendous and certainly the aesthetic value to humans who must live in an environment thoroughly altered or conditioned by man cannot be underestimated.*[2]

Weather

Although Barrow is the farthest north city in Alaska, it is not always the coldest. Because of the Arctic Ocean and the generally flat terrain which surround Barrow, there are no natural wind barriers. Thus the still-air conditions which produce extremely cold temperatures are not present nearly as often as they are in the Interior regions of the state.

On a year-round basis, however, the community is one of the coldest areas in the state. Barrow has an annual mean temperature of about 10 degrees above zero. This compares with 26 degrees for Fairbanks and 35 degrees for Anchorage. The maximum temperature reaches higher than 32 degrees on an average of only 109 days a year. Daily minimums drop below freezing for 324 days, or about 90 percent of the year. Freezing temperatures and snow have been observed in every month of the year.

The lowest temperature recorded at Barrow was 56 degrees below zero in February, 1924. The highest was 78 degrees in July, 1927. February is generally the coldest month with a normal mean of 18 degrees below zero. In April it begins to get warmer and by the end of May temperatures begin to climb above the freezing point. July is the warmest month of the year with a normal mean of about 39 degrees. A normal daily maximum in July is about 45 degrees. September marks the end of the short summer. By November about half of the daily mean temperatures are zero or below.

Barrow has long periods of almost total darkness and total sunlight. On December 18 the sun dips below the horizon and it does not reappear until January 24. By May 10 the possible sunshine has increased to 24 hours per day. The sun does not set until August 2 when it goes down for about an hour and a half. Then the decrease in sunlight becomes rapid. Four months later it is almost

1. Alaska State Housing Authority Survey, December, 1969.
2. Federal Field Committee for Development Planning in Alaska, *Alaska Natives and the Land,* Anchorage, Alaska, 1968, pp. 293–294.

Table 4
NORMAL TEMPERATURE, PRECIPITATION AND WINDS
BARROW, ALASKA

Month	Mean Temperature (Degrees F)	Total Precipitation (Inches)	Snowfall (Inches)	Prevailing Winds Direction	Prevailing Winds Mean Hourly Speed (Knots)
January	-16.2	.18	2.4	ESE	11.2
February	-18.3	.17	2.3	E	11.0
March	-14.6	.11	2.0	ENE	11.2
April	.2	.11	2.2	NE	11.6
May	18.4	.12	1.9	ENE	11.7
June	33.1	.36	0.5	E	11.3
July	39.1	.77	0.7	E	11.6
August	37.9	.90	0.6	E	12.6
September	30.5	.64	3.0	E	13.2
October	16.6	.50	7.1	E	13.5
November	.7	.23	3.8	E	12.7
December	-11.2	.17	2.8	E	11.4
ANNUAL	9.6	4.26	29.3	E	11.9

Source: United States Weather Bureau, 1920–1968 records.

continually dark. Even on the darkest winter day, however, there is usually a hazy light on the horizon for at least a few hours. Moonlight reflecting off the snow also helps to break the darkness.

Cloudiness, precipitation and heavy fog seem to be directly related to the amount of sunshine. The more sunshine, the more all three are likely to build up.

Precipitation in Barrow is very light. Were it not for the underlying permafrost which prevents deep water seepage, much of the North Slope might be a desert. The low evaporation rate, particularly during winter, also helps to retain moisture. The many shallow lakes around Barrow disguise the fact that water supplies are limited.

The normal yearly precipitation in Barrow is around four inches. This compares with 18 inches at Bethel and 60 inches at Valdez. The normal snowfall is only about 30 inches, but strong winds make and remake substantial drifts.

The wind speed throughout the year is rather consistent, with the fall months being the windiest. Extreme winds in the range of 45 to

Wien Consolidated Airlines

SNOW DRIFTS BECOME QUITE HIGH IN BARROW.

55 miles-per-hour have been recorded for all months. The prevailing wind direction is from the east, although in spring it tends to shift to the northeast.

Windchill is a key factor in personal comfort in Barrow. Along with air temperature, it is one of the major environmental factors affecting body heat loss. Both the January and July windchill values for Barrow are among the highest in the state.

Given a temperature of 22 degrees below zero and a wind speed of only 10 miles per hour (a normal situation in Barrow in February), the chill factor would be 48 degrees below zero. This condition presents a very great danger of frostbite. The same basic temperature (-22) with a wind of 20 miles-per-hour produces a chill factor of 70 degrees below zero. Much higher chill factors frequently occur during Barrow's long winter. It is obvious that superior clothing, housing and transportation are not luxuries in Barrow; rather, they are necessities.

Beach Erosion, Flooding and Gravel Supply

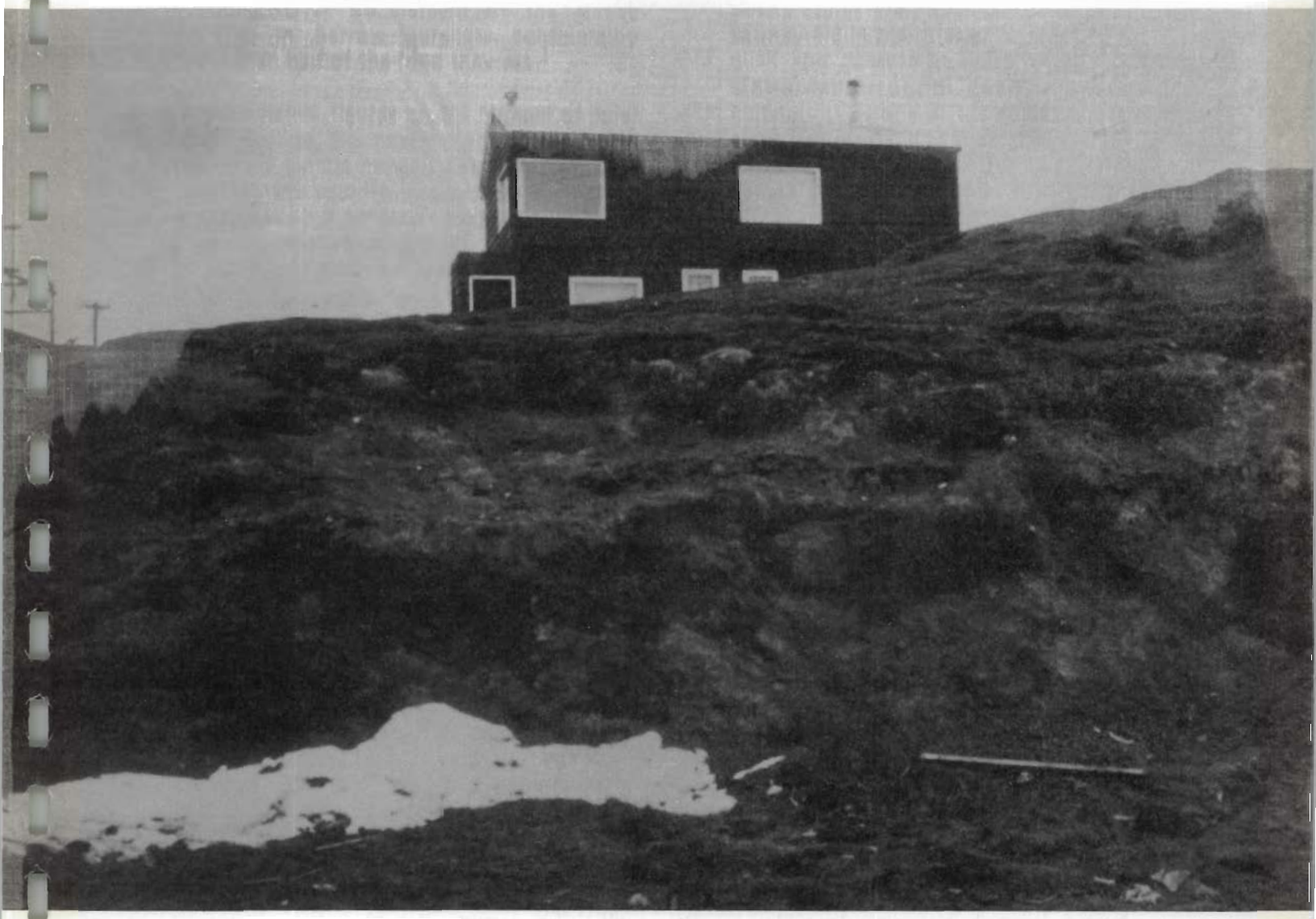
Barrow has a serious beach erosion problem, mainly as a result of indiscriminate removal of sand and gravel from the city's waterfront areas. The Corps of Engineers estimates that almost 400,000 cubic yards of sand and gravel were artificially removed from the beach areas during the period from 1961 to 1968. According to the Corps of Engineers:

> *The material (gravel) was needed for fill in other townsite areas, and the beach was the only convenient source. The airport was constructed with gravel taken from a beach pit ¼ mile below the town along the bluffs. The hospital and school are constructed on gravel fill taken from the beach in front of the eroding bluff, as is the gravel-filled oil barrel dam separating the water and sewage lagoons. In addition, contractors borrowed from the beach in front of the City Hall to begin early airport construction. Without doubt, smaller less conspicuous gravel removal is taking place as evidenced by haul roads maintained to the beaches. In summary, the erosion problem is man-made producing local starvation in downdrift areas as littoral materials moving along the beach must replenish the borrow areas.*[1]

The Corps estimates that the beach line has been retreating on an overall average of 10.2 feet per year since 1961. In some areas the retreat has been even faster. According to the Bureau of Land Management townsite trustee, the survey marker behind the Polar Bear movie theater was 125 feet from the edge of the bluff in 1963. By 1970, the marker was only nine feet from the bluff. This is a retreat of 116 feet in only seven years, or an average of over 16 feet per year.

A major storm at Barrow in 1963, perhaps the worst storm in the area in the past 200 years, further amplified the effects of man's excavation on the shoreline erosion. West winds up to 65 miles per hour and waves up to 10 feet high were reported. Unfortunately, there was no shore ice off Barrow at the time and the land took the full force of the storm and resulting floods. Bluffs southwest of Barrow were eroded 5–10 feet and in some

1. Alaska District, Corps of Engineers, "Point Barrow Beach Erosion Reconnaissance Report," Anchorage, Alaska, December 12, 1969, p. 4.



Economic Development Administration

These bluffs on Barrow's waterfront have been eroding on an average of 10 feet per year.

places the shoreline retreated 60 feet. Wind-driven water flooded most of the waterfront areas, according to the Corps of Engineers. About 15 houses were destroyed and the total damage to the city was some $250,000.

Nature is always trying to refill gaps and smooth out shorelines such as those off Barrow. Materials are transported through the water by drifting action. In Barrow the direction of this drifting action is northeast toward and around Point Barrow. Unfortunately, according to the Corps of Engineers' estimates, the net natural replenishment off Barrow is only around 10,000 cubic yards per year. Thus it could take 40 years to replace the material already removed by man.

While gravel was taken in an irregular fashion from selected points on the waterfront, the net effect of the borrow appears to be a general erosion of the entire city waterfront area. Nature reacts against an irregular beach line by smoothing out the jagged edges and eroding the entire beach in the process. According to the Corps:

> *. . . . lack of sediment in transport downdrift from the borrow area would alter energy factors and sediment would have to be picked up to restore the balance between energy available and work done. Erosion could, therefore, be expected further northeast along the beach and southwest in source areas.* [1]

The Corps estimates that, assuming no more excavation by man, a net retreat of 20–25 feet of beach line can be expected in the next 40 years, plus additional allowances for slumping along bluff lines and localized gully-type erosion.

The Corps of Engineers could be optimistic in its estimates. In 1964 two scientists from Massachusetts estimated that the yearly net transport at Barrow is only about 5,000 cubic yards of material.[2] This is only half of what the Corps estimates and may indicate a longer period of natural replenishment and greater erosion of the waterfront area. Dr. Max Brewer of the Naval Arctic Research Laboratory predicts that the beach will erode at least four times faster than the Corps of Engineers estimate.[3]

Besides restricting use of the waterfront, the beach erosion is also threatening existing development. The Corps of Engineers reports that there are 10 houses on private property atop the eroding bluff which are threatened by the erosion and will eventually be lost if they are not moved back to safe areas. In 1963, five prehistoric homesites were lost because of erosion and presently there are eight more about to be lost due to the crumbling bluffs. The road to the Arctic Research Laboratory is also subject to erosion in some places, especially around Browerville.

Measures should be taken to check the beach erosion, even if no more gravel is borrowed from the waterfront areas. The Corps of Engineers concluded that insufficient economic benefits exist to justify federal participation in beach erosion protection at

1. Ibid., p. 4.
2. James D. Hume and Marshall Schalk, "The Effects of Beach Borrow in the Arctic, "*Shore and Beach,* April, 1964.
3. Personal communication.

Barrow. It recommended that the city move the threatened buildings, streets and utilities out of danger and, at the same time, seek the assistance of the Corps in preventing further unwise removal of beach gravels from the area fronting on the Barrow townsite.

The basic problem is that the beach area is a vital section of Barrow. It is the only area with any great physical attraction, since the rest of the townsite is flat tundra. The beach area has great potential for both tourist-oriented and transportation development. Because of this potential, and because Barrow is short of land, every effort should be made toward a more positive approach regarding beach protection. But until actual beach protection measures are implemented, the city should pull back a safe distance from the water.

Even if all the threatened buildings and facilities are moved and no more gravel is taken, the beach line will still retreat at least another 20–25 feet on the average and much more in certain bluff and protruding areas. The uncertainty about future erosion will greatly hinder further development in the vicinity of the waterfront.

There are several possible solutions which the Corps of Engineers and other relevant agencies should consider. According to Dr. Max Brewer of the Naval Arctic Research Laboratory, a steel bulwark could effectively halt beach erosion in the area. Dr. Brewer estimated that such a bulwark would cost about $1–$1.5 million.

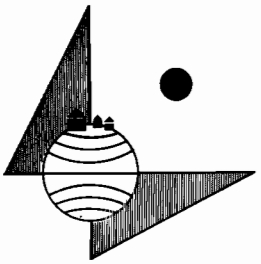
Another less costly remedy might be to blast material out of the cliffs southwest of the City of Barrow. This could increase the amount of sand and gravel which would be available to naturally replenish the shoreline around the city.

The city has very little room to pull back from its eroding beach. A workable solution to the gravel supply and beach erosion problems is desperately needed.

No more gravel should be taken from the beach, especially from the borrow pits west of the airport runway. Inland borrow areas should be jointly developed with the Navy. According to Dr. Brewer, Tasigarook Lagoon would be a good source. Dredging gravel out of this lagoon would deepen it and make it more functional as a sewage lagoon. There are also additional gravel sources inside the Point Barrow area which should continue to be jointly used by the Navy and the city.

People

Wien Consolidated Airlines



PEOPLE

Population – Past, Present and Future

Barrow is one of the largest Eskimo communities in Alaska and the final 1970 Census figures may show it to be the largest. The population has increased by more than 500 percent since the beginning of World War II and it has more than doubled since 1950. At the end of 1969, the population was estimated to be 1,993. This figure included 1,891 people[1] who live in the community and the following population of various federal housing compounds:

Bureau of Indian Affairs	45
Public Health Service	32
Weather Bureau	25
TOTAL	102

The population totals for Barrow do not include Natives who had an address outside the community at the time of the survey. According to the BIA, there were 120 Natives away at boarding high schools and 130 Natives out for special training at the end of 1969. Preliminary 1970 Census information for the City of Barrow estimates the population to be 2,201, about 10 percent higher than the ASHA estimate.

About 95 percent of the people who live in town are Natives. The people who live in federal housing units are all non-Natives.

The estimated population of the Naval Arctic Research Laboratory and Point Barrow Base Camp was 170 in December, 1969, giving the Barrow "metropolitan area" a total population of 2,155.

It is interesting to note the city's 51 percent gain in population from 1960–1969. But even more interesting is the magnetic attraction of large centers such as Barrow on the smaller population centers of the North Slope. In 1939 Barrow, Nome and Kotzebue accounted for 30 percent of their region's population, but by 1967 they had 45 percent.[2] In 1939, Wainwright, Barrow's closest neighbor, had a population of 341, only 22 less than Barrow. But by 1950 Wainwright's population had dropped to 227 while Barrow's had risen to 951.

According to one study of Barrow,[3] the local magistrate in Barrow estimated that 20–25 people moved from Wainwright to Barrow since 1960. She said that since 1960, all of the people from Point Lay with the exception of one family moved to Barrow. This involved approximately 50–60 people. During the same period, the magistrate estimated that 13 people from Anaktuvuk

1. This estimate is based on an ASHA survey conducted in December, 1969 in which the average household in the city was found to contain 6.1 people. This figure was multiplied times 310, the number of residential households listed by Barrow Utilities, Inc. The population living in government compounds was surveyed and calculated separately.
2. Federal Field Committee for Development Planning in Alaska, *A Subregional Economic Analysis of Alaska,* Anchorage, Alaska, 1968, p. 325.
3. Arthur E. Hippler, *Barrow and Kotzebue: An Exploratory Comparison of Acculturation and Education in Two Large Northwestern Alaska Villages,* University of Minnesota, Minneapolis, Minnesota, 1969, p. 20.

Table 5
POPULATION
BARROW, ALASKA
1939–1980

1939	1950	1960	1969	Basis of Projection	1980 Projection
363	951	1,314	1,993*	Increased Opportunities (Land Claims Settlement, More Local Employment, etc.)	3,500–4,000
				Continuation of Status Quo	2,700–3,200

* An additional 250 Natives were out of the city in boarding school or for special training. Preliminary 1970 Census estimates for the City of Barrow indicate a population of 2,201.

Sources: 1939–1960 – U.S. Census
1969 & 1980 – Alaska State Housing Authority Estimates.

Pass, 20–30 people from Point Hope and eight people from Barter Island also migrated to Barrow.

Even without in-migration from other North Slope communities, Barrow's population would have grown, although not as rapidly. According to the State Department of Labor, the Barrow Election District had 800 births and 130 deaths between 1960 and 1968.

Births in the Barrow area have dropped considerably in the past few years, probably because more women are using birth control devices. By 1967, PHS officials reported that 180 Barrow women of childbearing age had been fitted with Intra-Uterine Devices (IUD's) and that many more were using other contraceptives. In 1966 there were 83 babies born in Barrow, according to the Public Health Service. In 1968 there were only 37 births, while in 1969 there were 53. These figures also include babies born in Barrow to mothers from Wainwright and Barter Island, so they are not totally applicable to the local situation.

Table 6 shows how the birth rate is dropping. There are only 180 persons in the 0–4 age group, compared with 258 persons in the 5–9 category. However, the same table shows that 51 percent of Barrow's population is 14 years old or younger. If enough of these young people stay in Barrow, get married and have children, it is likely that the population will grow rather rapidly, at least during the next 20 years. An upward trend may already be developing. There were 16 more births in 1969 than there were in 1968. The Barrow Public Health Service Hospital reported 53 maternity admissions between July, 1969 and April, 1970. During the same period in 1968–69, there were only 42 maternity admissions.

Table 6
SEX AND AGE DISTRIBUTION OF NATIVE POPULATION
BARROW, ALASKA
1969

Age	Male	Percent	Female	Percent	Total	Percent	Cumulative Percent
0–4	85	(12.6)	95	(15.0)	180	(13.8)	(13.8)
5–9	127	(18.8)	131	(20.7)	258	(19.7)	(33.5)
10–14	127	(18.8)	102	(16.1)	229	(17.5)	(51.0)
15–19	45	(6.7)	52	(8.2)	97	(7.4)	(58.4)
20–24	48	(7.1)	46	(7.3)	94	(7.3)	(65.7)
25–29	41	(6.1)	34	(5.4)	75	(5.7)	(71.4)
30–34	28	(4.1)	28	(4.4)	56	(4.2)	(75.6)
35–39	40	(5.9)	23	(3.6)	63	(4.8)	(80.4)
40–44	34	(5.0)	31	(4.9)	65	(5.0)	(85.4)
45–49	25	(3.7)	25	(3.9)	50	(3.8)	(89.2)
50–54	15	(2.2)	16	(2.5)	31	(2.4)	(91.6)
55–59	21	(3.1)	20	(3.2)	41	(3.1)	(94.7)
60–64	17	(2.5)	9	(1.4)	26	(2.0)	(96.7)
65–69	10	(1.5)	8	(1.3)	18	(1.4)	(98.1)
70–74	4	(.6)	4	(.6)	8	(.6)	(98.7)
75–79	4	(.6)	5	(.8)	9	(.7)	(99.4)
80+	4	(.6)	5	(.8)	9	(.7)	(100.1)
Total	675	(99.9)	634	(100.1)	1,309*	(100.1)	

* Information was obtained on about 70 percent of the total Native population in Barrow.

Source: ASHA Survey, December, 1969.

The 1964 *Barrow Community Development Study* prepared for the BIA by the University of Alaska noted a very high out-migration from Barrow – about 3.1 percent per year. Although no precise figures are available, the actual out-migration, especially in the past five years, appears to have been considerably less. A later analysis of Barrow's population movements put this out-migration figure in a better perspective:

> *Specifically, it is the out-migration of women and in-migration of families which is demographically relevant, and which has important social implications.*

The birth rate and in-migration, plus a lower out-migration than the (1964) report assumes, are accounting for the steady increase in Barrow's population.[1]

When asked if they were planning to stay in Barrow, 184 out of 196 Native heads of households (or 94 percent) said "yes." Only seven said "no," while five were undecided.[2] These answers do not reflect the opinions of the younger population, the key variable in Barrow's future population. More research is needed on the age and sex of Barrow's out-migrants.

Many people are attracted to Barrow by facilities such as the school and hospital and especially by the prospect of steady employment. In fact, Barrow offers such a variety of services and "things to do," relative to other communities on the North Slope, that some people seem to stay on even though they are unemployed or underemployed for relatively long periods.

This is not to say that substantial out-migration from Barrow could not occur in the future. A serious recession or continuing frustration on the part of young people could cause mass movements to larger centers such as Anchorage and Fairbanks.

Because of the lack of final 1970 Census data and insufficient local information on deaths and migration patterns, it is impossible to make straight statistical population forecasts for a small community such as Barrow. The fluctuating birth rate and the uncertain economy and agency plans further cloud the picture. The projections in table 5, therefore, are little more than approximate upper and lower limits.

It is not all that important if the population of Barrow reaches 4,000 by 1980 or 1990. What is important is that the community get ready to accommodate a population of about 4,000. Not only will land have to be used wisely and well, but social, educational and recreational opportunities will have to be substantially increased. Also the various employers in the area (including the oil companies) will have to make every effort to keep imported outside labor to a minimum and instead use an increasing number of local hires.

The major difference between the two 1980 population projections lies in whether or not Barrow can develop as a full-service and full-employment community in time to prevent out-migration and still attract considerable in-migration, even from places such as Anchorage and Fairbanks.

Assuming a land claims settlement and increased employment for Barrow residents in the oil fields and with local agencies, Barrow should be able to develop into a relatively modern community. If things continue the way they are now, Barrow will still grow — but at a much slower rate.

Based on school enrollment projections by the BIA, it appears that Barrow could easily exceed 2,500 in population by 1976. At the end of 1969, there were 832 grade and high school students in Barrow,[3] or one student for each 2.4 residents of the city. The BIA has

1. Ibid., p. 21.
2. ASHA Survey, December, 1969.
3. This included 120 students away at boarding school, since the schools in Barrow run only through the ninth grade.

projected a total K–12 enrollment of 1,062 in 1976. Using the same 2.4 ratio, the population of Barrow would be 2,549 by 1976.

Natives and Non-Natives

Within the Barrow community there are 1,778 people living in all-Native (predominantly Eskimo), families, 113 people in non-Native or mixed families and 102 non-Native people living in the three federal housing complexes.[1] Thus all-Native families make up at least 90 percent of the total Barrow population. In addition, there are some 250 Natives from Barrow in outside boarding schools and special training programs, according to the BIA.

Barrow is more of a Native community than Nome, for example, because it was originally settled by Eskimos instead of whites and because in Nome the Natives account for only 70–75 percent of the total population. Barrow also has a city council and city government which are predominately Native while predominately Native places such as Nome, Bethel and Dillingham have had non-Native majorities on their councils and non-Native city administrators.

Compared to some Alaska Natives in other parts of the state, the people of Barrow have had a relatively long period of contact with non-Natives (predominantly white Europeans and Americans). By 1867 the whaling ships were frequenting the Arctic waters off the north coast of Alaska. (See the history section on pages 15 through 18.)

One recent report summarizes the general attitude of the Barrow Eskimos toward the outsiders:

> *The early group of Eskimos in Point Barrow furnished many men for the whaling expeditions of the 19th century in return for trade goods and material products of the Western civilization. At times, these goods were gotten not through trade but through outright aggression against the whaling vessels. The Barrow Eskimos had never been shy, and generally assumed their own superiority over the white men during the early contact period.*[2]

Anthropologist Norman Chance summarizes some of the different perceptions which white people have of Barrow:

> *To some whites, the village is an economic and socially depressed community, composed of poorly educated, dependent people who 'don't know where they are going.' To others, the community appears vibrant with activity, its leaders tackling the problems before them with zest and determination. Neither of these two pictures of Barrow are accurate, but both contain certain truths. Even with all its problems of modernization and social upheaval, Barrow is not severely disorganized. On the contrary, the fact that it is becoming more consciously aware of what its problems are, and how it should go about trying to solve them as a community, suggests a new level of*

1. ASHA Survey, December, 1969.
2. *Barrow and Kotzebue: An Exploratory Comparison of Acculturation and Education in Two Large Northwestern Alaska Villages,* p. 11.

growth and achievement. Of fundamental importance is the fact that the Eskimo likes to live in Barrow.[1]

There are many statistical differences between Barrow Eskimos and whites, especially the whites who live in federal housing units. The average Native household is composed of 6.2 persons, while the average federal household has only 2.5 persons. The head of the household in federal housing has a median of 16 years of education, while the median Eskimo head of the household has only five years of formal training.[2] Most of the Natives in Barrow have lived there for some time (if not all their life) while most of the white agency people stay for a maximum of about two years. Almost all of the federal housing units have running water and flush toilets, but few, if any, of the Native houses have flush toilets and only about 10 percent have running water.

One of the main complaints that many Barrow whites have about the Eskimos is that they drink too much. Public Health Service personnel describe the local alcoholic consumption rate as high, but report almost no clear evidence of alcoholism in the Native community of Barrow. While only a half dozen or so Natives in Barrow might be considered alcoholics by PHS, the white population evidences a much higher level of alcoholism and potential alcoholism, according to one study.[3] A survey of 1967 air cargo manifests (since all liquor and beer must be imported by air freight) indicated that "per capita drinking by whites in Barrow is fifteen times as great as the drinking by Eskimos."[4]

Undoubtedly some of the alcohol going to whites eventually finds its way to the Eskimos, but it does appear that Barrow should look at its alcohol problem a little more clearly and separate fact from fiction:

> *. . . if Natives drink to get drunk and go out on the street or meet their friends where they are more visible, they may more easily be seen as social problems than the white who drinks quietly in his room. It is probably this cultural difference in the technique of drinking, rather than the total amount of drinking that is done – and the incidence of alcoholism – that makes many whites suggest that Natives in the area are prone to alcoholism.*[5]

There doesn't appear to be much overt discrimination in Barrow on the part of either the Eskimos or the whites, although several agencies in the area have had separate dining facilities for each group of their employees. The hospital still seems to have this kind of system.

On the other side of the coin, there are many areas of interracial harmony and cooperation. There is a city basketball league which has integrated teams and there is apparently good cooperation between the white State Trooper and Barrow's Native police force. The same holds true for Barrow's volunteer fire department and the fire department out at

1. *The Eskimo of North America,* p. 91.
2. ASHA Survey, December, 1969.
3. *Barrow and Kotzebue: An Exploratory Comparison of Acculturation and Education in Two Large Northwestern Alaska Villages,* p. 31.
4. Ibid., p. 32.
5. Ibid., P. 32.

the Point Barrow Base Camp. There is a general spirit of cooperation which is often the case in the harsh and demanding Arctic regions.

According to the local magistrate, there were nine Eskimo–white marriages in Barrow in 1967, with all the Eskimos being women. In addition, many marriages of Barrow Natives to whites occur outside the community.

Eskimo–white relations in Barrow are generally harmonious, perhaps because the Natives and whites have had a long time to become used to each other's ways and because Barrow is a fairly large and sophisticated community. The real unknown factor is the perceptions and attitudes of the whites, especially the agency whites.

One anthropologist suggests that the white culture in Barrow and other bush communities be the topic of future study:

> *It is inevitable that changes which occur as a result of contact between two relatively distinct cultural groups have meanings for both the more dominant and the more subordinate groups. Since it seems more clear that some of the primary problems in change in Alaska have involved the perceptions of change agents from the dominant culture, understanding the 'culture of the changers' becomes a most critical area of investigation. 1*

Education and the Generation Gap

Since Barrow has a young population, education is a prime concern. Also important is the relationship between the more educated young people and their elders who have had less formal education.

Table 7 shows the younger people in Barrow to have considerably more formal education than their elders. According to an ASHA survey, the average young adult in Barrow is likely to have finished high school, while the average head of a household is lucky to have finished fifth grade. If and when a high school is built in Barrow, the level of young people's educational achievement will probably rise even higher.

Education is relevant to many of Barrow's problems, including employment, health and population growth. It is also affecting local perceptions of the Eskimo culture, according to one anthropologist:

> *. . . Eskimo children in Barrow are exposed to the view propounded by many teachers that the only meaningful existence in the modern world is to become a part of the white culture. What cultural difference still exists in their community is openly denigrated by some of these teachers and some natives. . . . Children in such circumstances cannot help but develop a belief that there is something about their village life which is innately and inherently inferior, and, by extension, something inferior about themselves. 2*

The BIA's response to the Native pride issue has been varied throughout its Alaskan history. One sample of current thinking appeared in a form letter received by the president of the Barrow City Council in 1969:

1. Arthur E. Hippler, "Some Unplanned Consequences of Planned Culture Change." Boreal Institute of the University of Alberta, Occasional Publication Number 6, Edmonton, Alberta, 1968, pp. 18–19.
2. *Barrow and Kotzebue: An Exploratory Comparison of Acculturation and Education in Two Large Northwestern Alaska Villages,* p. 11.

Table 7
YEARS OF EDUCATION
A SAMPLE COMPARISON OF TWO NATIVE AGE GROUPS
BARROW, ALASKA
1969

Age Group	Years of Education 0–3	4–7	8–11	12–15	16 & Over	Total Percent
Heads of Households (Percent)	34.1	35.0	18.7	12.1	0	99.9
Non-Heads of Households Between the Age of 18–21 (Percent)	0	6.0	30.3	63.6	0	99.9

Note: Since most people in the 18–21 age group have not had time to finish college, the educational achievement for this group is probably higher than the table indicates.

Source: ASHA Survey, December, 1969.

Dear Council President:

Educators in the 'lower 48' are talking about how the schools serving Indian children should be helping the pride that the children have in being Indians. They further think that many of the customs and ways of behaving at home should be allowed at school. These educators feel that the children should have a strong feeling of pride in themselves and their parents and grandparents before they can successfully undertake the education offered to them in school.

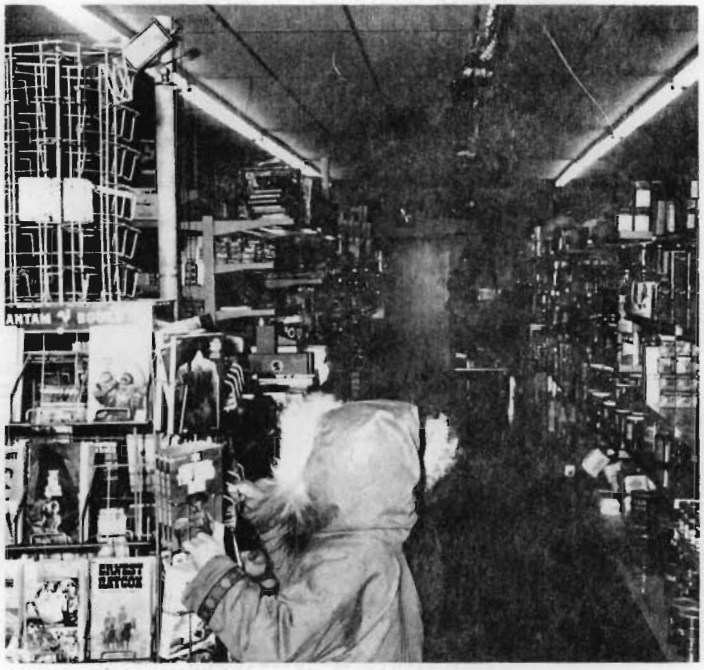
We would like to have your ideas about whether you feel the children in your village are proud, confused or ashamed of their heritage. Do you think that we should teach our students about all the Native people or do they know enough? Should we teach the students about all the differences among non-native people, or is this not important? We want to know how you and the people in your village feel about this.[1]

Over and above the issue of Native pride, local education has become a prime concern in

1. Letter from Allan O. Crain, Superintendent of Mt. Edgecombe High School in Sitka.

Wien Consolidated Airlines

Alaska State Housing Authority



Alaska State Housing Authority

Barrow in recent years. At present, students can stay in Barrow only through the ninth grade. Then they have to go to a boarding high school in another part of the state or somewhere in the lower 48. One school of thought in Barrow says that it is good for young people to see the outside world and therefore a local high school isn't needed. The other side contends that education is a 24 hour-a-day process in which the family, friends and community play an important role. It says that both the community and the young people would benefit from local educational opportunities of a superior quality.

Regardless of the arguments pro and con, many qualified observers, including the State Department of Education, agree that a community as large as Barrow needs a four-year high school.

Barrow must offer its young people more alternatives if it hopes to remain as a dynamic and growing community. Some students may elect to go out for specialized training, but many would probably be content to stay in Barrow if a top quality high school were built. A local high school facility would also enable parents to become more involved in their children's education. Additional facilities would become available for local adult education, a program which is now almost nonexistent in Barrow.

Regardless of the quality of classroom education and the opportunities for adult training, the generation gap will continue to some degree in Barrow, as it is all over the United States. Young Natives are already being exposed to recent movies and the latest in fashions and rock music. Television already exists in Barrow and it will probably improve in quantity and quality. Community leaders will have to consider these new inputs as they plot a future course for Barrow.

At present, a good number of young people appear ready to do anything to get out of Barrow, even to the point of committing petty crimes and getting sent out for detention or treatment. If young people are given more options and opportunities in Barrow, it might help to reduce their feelings of being trapped in the community.

One observer noted the serious nature of the culture and generation gap in Barrow, as seen from the eyes of the town elders:

> *Many of the town elders also see the present social situation in this small town in terms of fundamentalist religious concepts. This has created and undoubtedly will continue to create severe social divisions in Barrow.*
>
> *. . . There is concern about adopting 'white' customs such as 'promiscuity', when the actual behavior involved is probably closer to aboriginal Eskimo norms than to white. In general, it would appear as though the town elders have accepted a 'progress' ethic and have become overtly anti-Eskimo. There is continual expressed fear of 'going to the dogs on welfare' in addition to the fear about alcoholism.*
>
> *If the perceptions of the town elders are fearful about these matters, the best data available independent of their judgments suggest that their concerns are inappropriately directed.* [1]

1. *Barrow and Kotzebue: An Exploratory Comparisonof Acculturation and Education in Two Large Northwestern Alaska Villages,* pp. 30–31.

The PHS social worker in Barrow detailed the problem from the perspective of the younger residents of the community:

> *. . . the normal turmoil of adolescents is combined with rapid cultural and social change. Part of the problem seems to lie in a familial and institutional response which makes the child work out such conflict on his own. There is no established means by which frustration and anxieties may be discussed or anticipated, e.g., being sent to a BIA school 1,000 miles from home with apparently little or no communication or preparation. Both the hospital and the city are viewed with some alarm.* [1]

The PHS social worker suggested that Barrow hold a regular "teen night" as an open forum in which the young people could express themselves on a variety of concerns. This would probably work well in conjunction with a regular meeting of the city council.

The problem is obviously too complex to be thoroughly analyzed in a comprehensive plan. Further studies and action programs will have to come from the community and from various agencies which serve it. But until this problem is dealt with, no plan for Barrow will be totally effective. A plan is for the future, and Barrow's future lies with its young people.

Mental and Physical Health

The generally poor health of most Alaskan Natives relative to Alaskan whites has been sufficiently documented in other publications, for example in *Alaska Natives and the Land.*[2] Barrow has many physical health problems, especially since it is one of the largest communities in Alaska without sewers or running water. It also has some quite serious mental health problems brought about by such factors as rapid cultural change, physical isolation and the long months of winter darkness.

Health, especially physical health, in Barrow is a prime concern of the Division of Indian Health of the U.S. Public Health Service. The State of Alaska has the legal responsibility for mental health. There are no private physicians in Barrow. The PHS Barrow Service Unit includes a 14-bed hospital, two doctors, a dentist and a health clinic. A State Public Health Nurse was premanently assigned to Barrow early in 1970. The Barrow Service Unit serves a vast 65,000 square-mile area of Northern Alaska. But this area includes only two small communities besides Barrow – Barter Island and Wainwright.

The following is a summary of health problems in Barrow, as noted in the Fiscal Year 1970 Operating Plan for the Barrow Service Unit of PHS: (These observations cover the entire Barrow Service Unit area, but Barrow has at least 80 percent of the Native population in this area.)

ACCIDENTS

Hospitalization, outpatient treatment and emergency evacuation of patients injured as a result of accidents is a major problem within the Service Unit. The severe climatic conditions and the daily

1. Barrow Service Unit of the Public Health Service, "Five-Year Social Work Program," 1969, p. 4.
2. Federal Field Committee, Anchorage, 1968.

activities of the Native population such as hunting, trapping and the use of snow machines for transportation are irreducible factors in the cause of these accidents. Carelessness and intoxication also contribute to the cause of many accidents. Intoxication is an evident factor in 50% of the accidents involving adults. (Underlining added.)

ACUTE DIARRHEAL DISEASES

Because of inadequate controls over the water supply and sewage disposal system, diarrheal disease is common.

DRINKING PROBLEMS

The actual problem concerning alcohol in Barrow is not true alcoholism (problem drinking) but the related social, physical, psychological, moral and financial problems that occur when a large proportion of the individuals who do use alcohol lose control over their intake and are unable to stop drinking before becoming intoxicated.

The age group within which this problem is most evident is the 15 to 30 year group. (Underlining added.)

VENEREAL DISEASE

The village of Barrow has one of the highest incidences of venereal disease in the state. This is exclusively in the form of infectious Neisseria gonorrhea. The problem has involved almost all ages. Cases have been diagnosed during the past year between the ages of 8 and 60. The greatest majority of the offenders and repeat offenders, however, are in the 15 to 30 age groups.

Very little problem is encountered with the symptomatic males seeking early treatment. Females, however, named as contacts and who are generally asymptomatic, are very often difficult to get to the hospital for treatment. A few such difficult to contact reservoirs thus continue to spread disease unchecked. (Underlining added.)

TUBERCULOSIS

Tuberculosis in the Barrow Service Unit is under adequate but not complete control. Approximately 90% of the adult population has had pulmonary tuberculosis of one degree or another while only about 7% of the school age children are tine converters. Although the infected population is ideally inactive, at least two to five individuals in this population can be expected to reactivate yearly without an intensive program of follow-up and regular supervised chemoprophylaxis.

A reactivation often infects childhood contacts, thus implanting more of the disease in the younger generation and removing us further from the goal of total eradication. (Underlining added.)

REFRACTIVE PROBLEMS AND EYE DISEASES

A 1968–69 study of myopia in the Barrow Service Unit by a team from the University of Washington State revealed that over half of the school children in Barrow had myopia of a degree significant enough to require optical correction. Because of the excellent cooperation by this study team in the refracting and prescribing of glasses to

those people who were examined as well as occasional trips by an itinerant optometrist, the number of refractions by Service Unit personnel has been minimal during fiscal year 1969. Since outside help in such a form cannot be depended on in the future, a large portion of the refracting of this myopic population must be borne by the Service Unit physicians in the future.

Studies have also shown that the Alaska Native has a very high incidence of narrow angle glaucoma, old PKC and other causes of corneal scarring, and a slightly increased number of eye muscle problems when compared to the Caucasian population. The backlog of these problems which will require surgical correction remains significant. (Underlining added.)

IMPETIGO

Streptococcal skin infection or impetigo continues to be a problem among the preschool children within the Barrow Service Unit. A project of supplying soap and wash cloths with instructions regarding skin care was made available to the younger school age children last year as a result of recommendations made in this category. These items and instructions were provided by the Public Health Nurse. A definite decrease in severe impetigo incidence has been noted among the school age children.

HEARING PROBLEMS, DEAFNESS AND OTITIS MEDIA

The severity of otitis media in infants appears to be inversely proportional to the conscientiousness of the parent. It has recently been demonstrated here at Barrow that if treatment is prolonged and persistent enough and started early enough, most small perforations of the tympanic membrane will heal and the middle ear problems will decrease as the child grows older.

However, the problems of deafness related to previous treatment failures or lack of treatment are still with us. In a recent survey of the school population it was found that 16.1% of the children have defective hearing. The percentage of these children who will respond educationally and psychologically from middle ear surgery is currently under study here in Alaska by the PHS. (Underlining added.)

DENTAL SERVICES

The oral health problems of this Service Unit are overwhelming.

Adults are largely neglected, though those conscientious few who seek restorative treatment are seen. Very little prosthetics is performed. Emergency care is always rendered.

Little, if any, oral health education is given to the adults or school children by the dental staff mainly due to the shortage of personnel.

The present status of one dentist and one assistant is not adequate to maintain a maintenance level of grades beginner through ninth in Barrow.

PERSONALITY DISORDERS OF ADOLESCENTS

Most personality disorders of adolescence, even in a mixed

Eskimo/Caucasian community such as this, can be viewed as a crisis in the establishment of an ego identity. Conditions hindering the development of an identity such as failures in coping with problems of a new society, disappointment in love, early introduction to alcohol, failures in the establishment of values or a possible academic failure, all contribute to a tension producing situation.

In one adolescent, anxieties or tensions are endured or conquered; in another, mixed emotions result in wild, unreasonable behavior that is so noticeable or self-damaging to the individual that it cannot be ignored.

All of these problems can be pinpointed to a greater or lesser degree, in the adolescent of Barrow as in any other community. However, in Barrow, the problem seems to be increasingly beyond reasonable proportion to the population.

In the last three years Barrow has had five suicides and in the last two years there have been 20 attempted suicides. (Underlining added.)

With such an inventory of physical and mental health problems, Barrow will continue to need a maximum input from the Public Health Service (or its equivalent on the state or local level) for many years to come. PHS has been changing the emphasis of its programs from putting out health "brushfires" to taking a total interest in the community's physical, mental and social health. A full-time PHS social worker was available in Barrow for the first time during 1969. The prevention of disease is now being stressed, along with the cure. Hopefully, PHS will continue to cooperate with the Public Health Nurse and the community in a coordinated program to prevent disease and encourage proper hygiene.

The sections of this plan dealing with housing (starting on page 77) and water and sewage (starting on page 133) will be of special interest to those concerned about the physical health of Barrow residents.

Mental health diagnosis and treatment in Barrow are still in the primitive stage. PHS has a psychiatric social worker team in Anchorage which can provide some assistance to local service units, but PHS spokesmen say that most of the serious psychiatric cases are left to the state, especially the Alaska Psychiatric Institute in Anchorage. Most physicians are reluctant to diagnose mental health problems, so the breakdown between mental and physical health problems in Barrow is unclear.

The cultural gap between the Natives of Barrow and outside mental health professionals is also worthy of mention. According to one author:

> *Most experts agree that (mental) health represents a conclusion about the individual that is heavily loaded with the values and biases of the culture. Probably the only consensus is that health is the absence of disease. Beyond this the culture decides whether to place high value on flexibility or rigidity, introversion or extroversion, expression of emotions or emotional control, passivity or aggressivity.* [1]

1. Donald Klein, "Community, Who Needs It?," *Psychology Today*, December, 1969, p. 34.

The PHS social worker in Barrow has noted a "lack of resources inside and outside of Barrow to handle the diagnosis, treatment and handling of problem learners and problem behavior."[1] According to the social worker:

> *There seems to be too much reliance on Fairbanks and Anchorage to be the operation base for service programs. The Barrow Service Unit needs these agencies physically present.*[2]

The preceding section on the generation gap goes into more detail on this factor as it affects the mental and social health of Barrow.

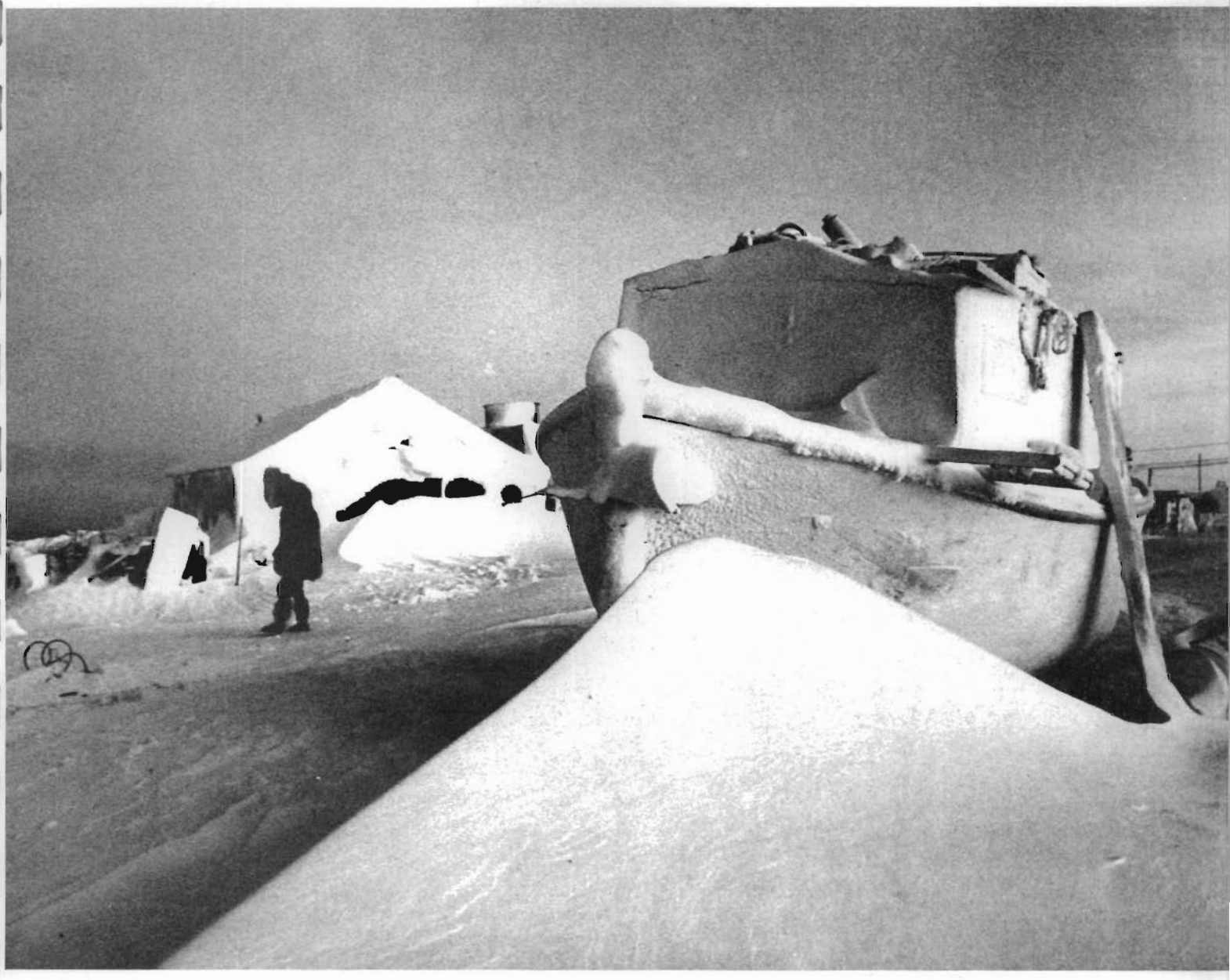
Obviously the entire mental health problem in Barrow is a major topic in itself. But there is a growing feeling that the actual community is an important factor in an individual's mental health. To the extent that it improves the community, a plan such as this can be both useful and relevant:

> *. . . Every community remains – physically and psychologically – the huddling place, where man finds safety and basic security. Remove the community and you have stripped the individual of goods and services, common values and beliefs, protective laws, customs and their enforcers. Without this protection, little is left but danger and the threat of total destruction.*[3]

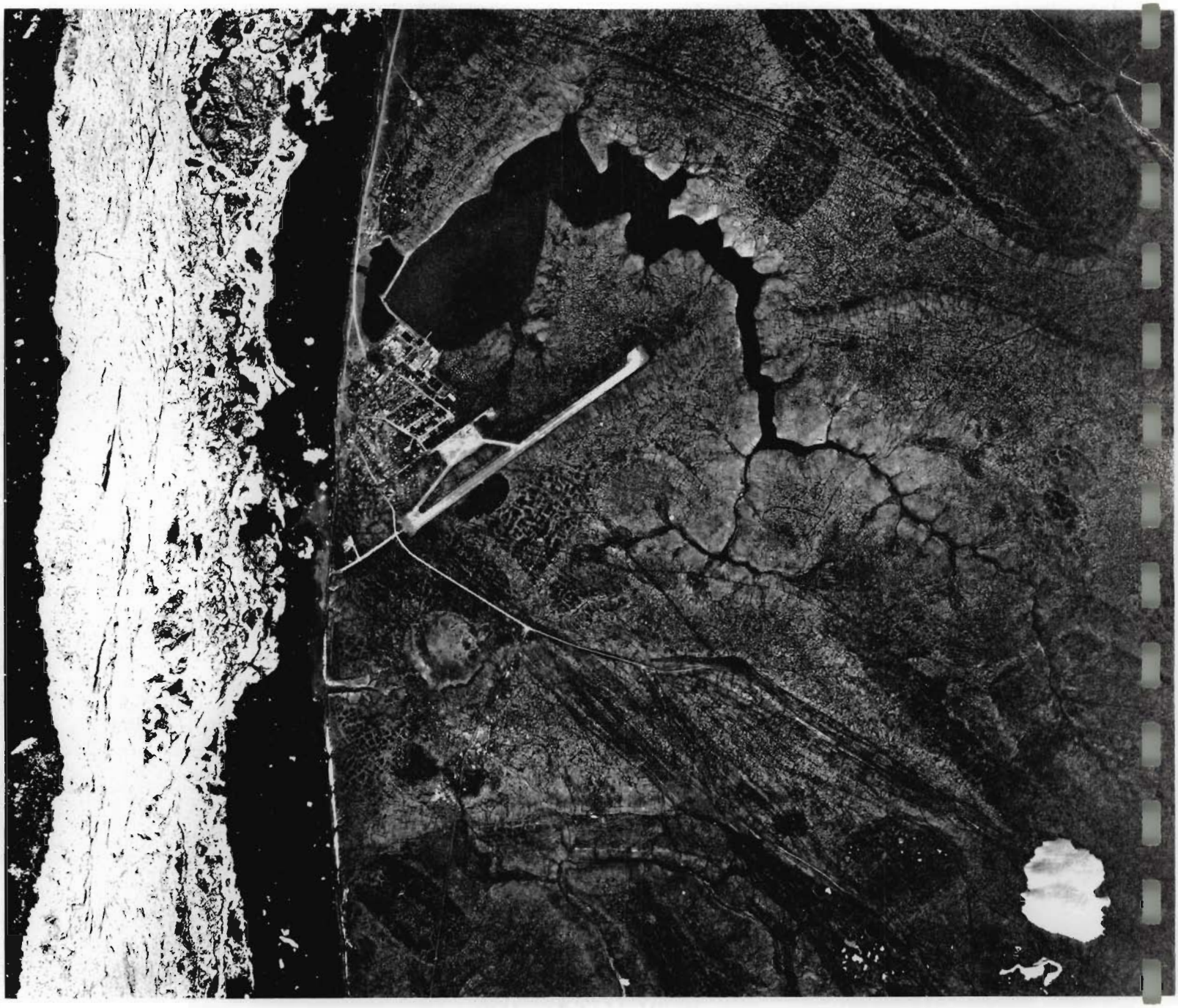
> *. . . Professionals involved in mental-health programs must cultivate an appreciation for existing patterns of community life and the functions they perform, however inadequately. They must understand the complexities of the community and the interdependence of all its aspects.*[4]

Barrow needs a local mental health center. Funds for this purpose are available from the federal government under the Community Mental Health Centers Act of 1963. Such a center could be integrated with the existing hospital.

1. "Five-Year Social Work Program," p.3.
2. Ibid., p. 3.
3. "Community, Who Needs It?," p.35.
4. Ibid., p. 62.

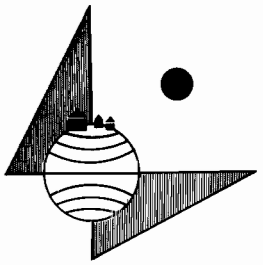


Land Use And Streets



U.S. Coast and Geodetic Survey

BARROW – JULY, 1966



LAND USE AND STREETS

General Development Goals

With a population of 2,000 and a history of over 80 years, Barrow is truly the only major city on the North Slope. There are a few other Native settlements such as Barter Island, Wainwright, Anaktuvuk Pass and Point Hope, but the combined population of these four places is less than half of Barrow's total. The dynamic urbanizing influence on the North Slope at present is the oil industry. Barrow's role in this industry will have a profound effect on its future land use patterns.

The North Slope is a vast region (56.5 million acres) and it might be possible to consider developing a great number of temporary oil-related camps and settlements from the tundra up. But this probably wouldn't be sound on an economic or physical basis since the North Slope is an area known for its high construction costs and fragile ecology.

It certainly wouldn't be sound on a political or social basis to ignore an existing settlement such as Barrow. The lower 48 states have already provided too many examples of major mineral and natural resource development which took place without any significant improvement in the local native economy. Alaska itself has seen a considerable amount of this type of development. Mineral resources and human resources should be jointly developed. If this is not possible, the minerals should stay in the ground.

Barrow should be the focus of much of the new oil-related development on the North Slope for many reasons. It already exists, it has a number of community facilities such as a large school complex, a modern hospital and the only asphalt-paved airstrip north of the Arctic Circle. There is a concentrated population and work force already in Barrow. Instead of creating a lot of temporary "new towns," "shanty towns" and "service towns" on the North Slope, government and industry should look to Barrow and help the local government supply the many buildings, transportation facilities and services still needed to make Barrow a truly first class city, a showcase in modern Arctic development.

Barrow has great potential as a government and education center for the North Slope. Office space for these activities is already in great demand. The same goes for personnel housing. A significant increase in activity by any or all governmental units (federal, state, regional and local) could have correspondingly significant land use implications.

Barrow has national and international value as an Arctic research center. Although much of this activity is now centered on the nearby Naval Arctic Research Laboratory, a case can certainly be made for developing scientists' quarters and work areas closer to Barrow or even right in town. Social scientists in particular might benefit from a more "natural" environment. Development at NARL will continue to have side effects in land use in Barrow, such as the amount of land devoted to commercial uses. A major increase in the amount and scope of Arctic research, whether in Barrow or out at NARL, will undoubtedly affect the pressure for land and facilities in the city.

The local government can help build a better Barrow by planning and directing use of local

lands with significant expansion and growth in mind. However, all this local effort will be a wasted exercise if government and industry each go their separate ways, with no consultation and communication with Barrow's elected leaders and general citizenry.

Land use goals should include a concern for pedestrians and snow machine riders since there are very few private automobiles or trucks in Barrow. Vehicles cost two to four times as much to maintain and operate in the Arctic as they do in more temperate regions.

Pedestrian travel is highly important because of the limited capacity and high cost of snow machines. Navy engineers at the Arctic Research Laboratory consider 1,000 feet to be the maximum walking distance when the temperature is 25 degrees below zero with an eight-knot wind.

Climatic conditions in Barrow are often more severe than this standard, making walking allowances even shorter. This, plus the difficulty of finding gravel-rich permafrost building sites, should lead to a policy of a more concentrated development. The ultimate installation of sewer and water lines will be cheaper, will come about sooner and will serve a higher percentage of the citizens if residential and commercial lots aren't scattered all over the tundra.

Although higher densities are recommended, this does not mean that Barrow residents should turn their backs on the outdoors and ignore or avoid the natural environment. It seems necessary to a person's psychological and social well-being to get outdoors regularly, even in periods of extreme cold. Heated utilidor-type walkways may be necessary in some areas, but they are not recommended on a city-wide basis. Parks and recreation areas can help to provide islands of open space in any higher density development.

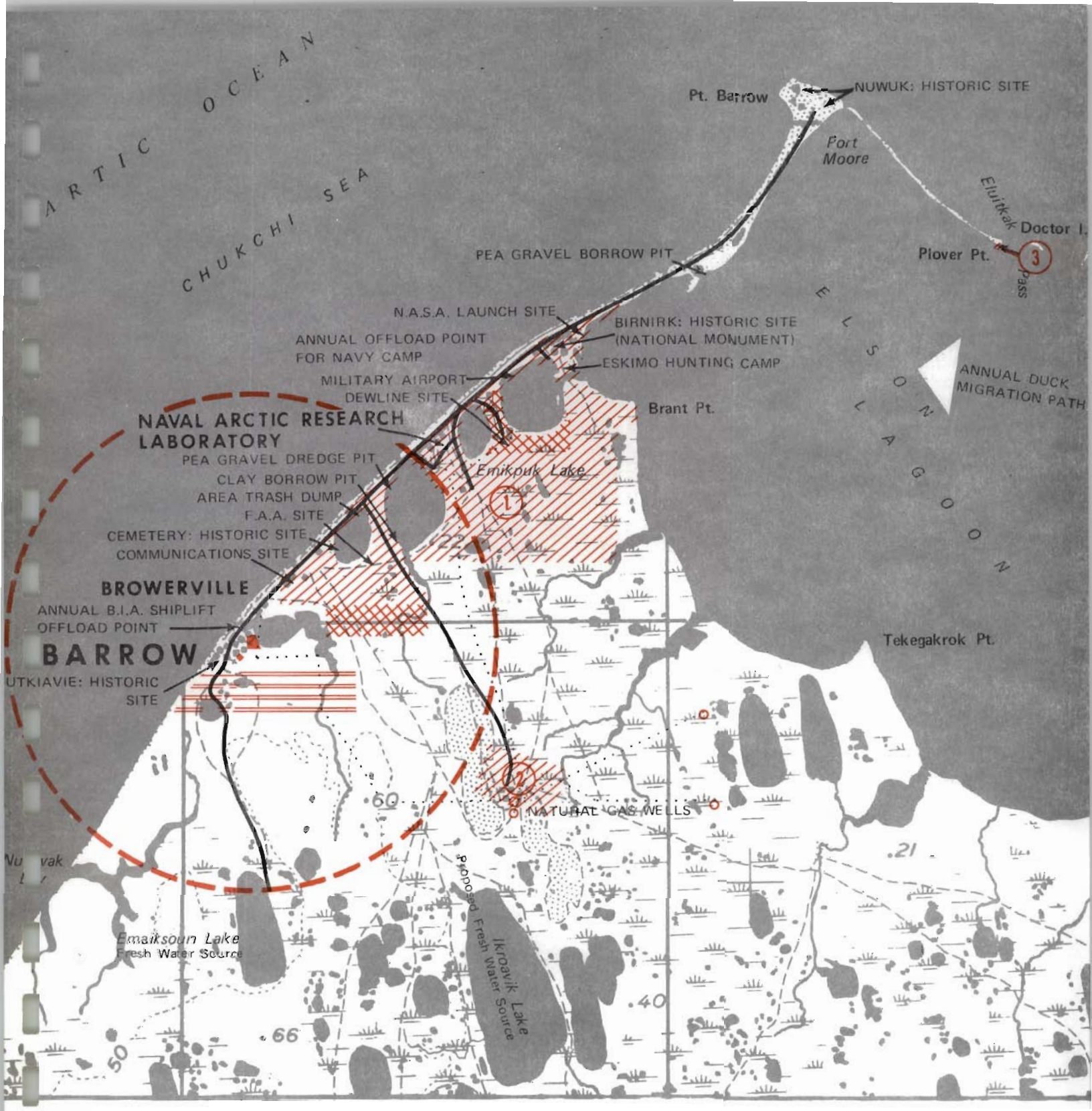
Another concern of those directing future land use in Barrow should be the increased use of multi-story buildings which conserve heat because heat from lower floors rises to the upper floors. Piling costs can be reduced by building one two-story building instead of two one-story buildings. It is also cheaper to build one roof instead of two. If public agencies would utilize more multi-story buildings, they could substantially reduce the amount of land requested from the city for various construction projects.

One of the problems affecting future land use in Barrow is the history of inefficient land use decisions in the past, most of them made by federal and state agencies. Of paramount importance to any future land use policy is the necessity that the leaders and citizens of Barrow be granted early consultation regarding public building and construction projects, both within the city limits and the general metropolitan area (including the Naval Arctic Research Laboratory). Barrow, in turn, will have to obtain the necessary expertise in the form of a city manager, a planning commission and various types of planning consultants. The state's Planning Advisory Services Program could also be used by the local government.

All land uses within 10 miles of Barrow should be analyzed under one regional plan and controlled by one regional committee or commission. Until this happens, plans for portions of the region will provide only partial solutions to the area's many and varied problems.

Existing Land Use and Streets

It seems almost ironic that a city as remote and small as Barrow should be short of land. But this is the case and the shortage has become almost critical. Barrow is boxed in not only by the natural barrier of the Chukchi



BARROW REGION LAND TENURE
JULY, 1970

- APPARENT CITY LIMITS (3 MILE RADIUS) SUBJECT TO LOCAL BOUNDARY COMMISSION HEARINGS, FALL 1970
- U. S NAVAL RESERVES ① ARCTIC RESEARCH LAB (4,541 ACRES) ② GAS WELLS (421.6 ACRES) ③ TIDAL GAUGE (10 ACRES)
- STATE AIRPORT LANDS (732 ACRES)
- FEDERAL AGENCIES (30.9 ACRES) (BUREAU OF INDIAN AFFAIRS, PUBLIC HEALTH SERVICE AND WEATHER BUREAU)
- U.S. AIR FORCE RESERVES (538.8 ACRES)
- NAVAL PETROLEUM RESERVE NO. 4 (23 MILLION ACRES – ONLY A PORTION IS SHOWN ON MAP)
- ROADS
- GAS LINES

Sea on the northwest, but also by a paper wall of federal and state land withdrawals.

The city is located within the 23-million-acre Naval Petroleum Reserve Number 4. The U. S. Navy and Air Force also have a special reserve of some 5,000 acres apparently blocking any development past Browerville toward Point Barrow. To the south there is the 732-acre state airport withdrawal. To the east are the federal school and hospital complexes. In addition, the Weather Bureau occupies some eight acres of prime land in downtown Barrow.

Each one of these barriers might not be serious in itself, but together they have left Barrow's leaders with a surveyed townsite of some 250 acres[1] (including Browerville) for a growing population. While most of the lots in the existing central Barrow portion of the townsite have been used or spoken for, growth is still possible in the Browerville suburb across the lagoon. The Bureau of Land Management, which drew up the Barrow plat in 1963, said there are 379 lots in Barrow proper, exclusive of Browerville. Almost all of these are under private ownership.

Browerville on the other hand has 211 lots, of which only 47 have been claimed. This shows how unpopular Browerville is with the residents of the community. While it is only about two thirds of a mile from the center of Browerville to the center of Barrow across the lagoon (when it is frozen), this can be an uncomfortable and even dangerous trip for a pedestrian or a snow machine driver when the chill factor is 70 or 100 degrees below zero. Pedestrians can also walk across the dam between the two lagoons, but this is not the most direct route between Barrow and Browerville. There are no schools or churches in Browerville and there is only one store.

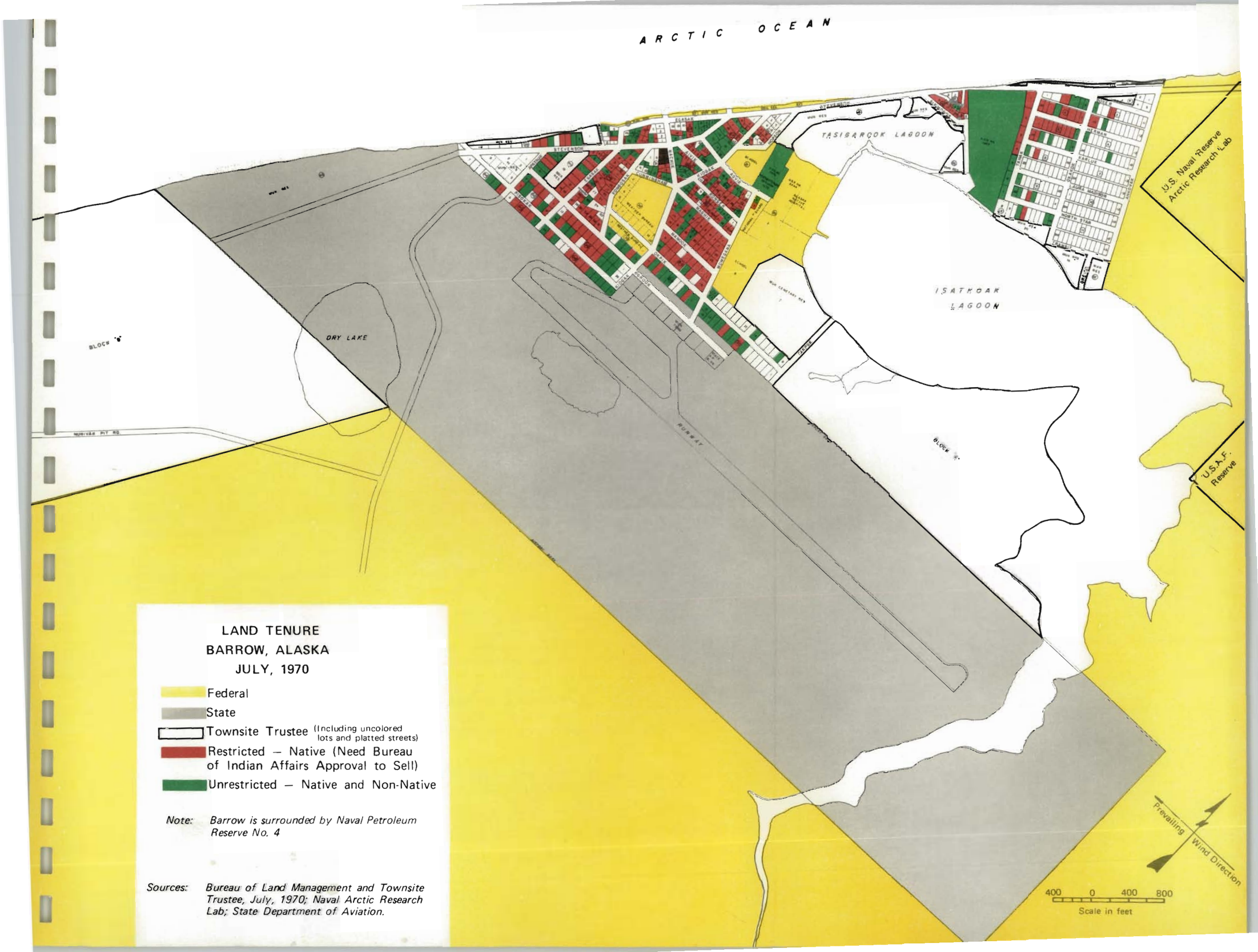
Other growth alternatives for Barrow lie through two rather narrow corridors – one east between the lagoon and the airport to Block "A" which contains 107 acres and the other along a single undedicated road at the east end of the airport to Block "B" which contains 420 acres. (See map on page 67.)

The Bureau of Land Management is scheduled to survey all of Block "A" and 50 acres of Block "B" in the summer of 1970. This will provide Barrow with approximately 100 acres for future residential and commercial development since about 50 acres of Block "A" will be reserved for the new school. As part of the Planning Advisory Services Program, ASHA submitted draft subdivision proposals for Blocks "A" and "B" to the Barrow City Council and the BLM in April, 1970. These proposals were accepted by the council and will be used as guides for the BLM surveyors.

Considering the natural and bureaucratic obstacles, the city has generally developed into a fairly logical land use pattern. The commercial area in Barrow is quite compact. All three of the general stores, along with the bank, hotel, two restaurants, one movie theater and the bakery are within 600 feet of each other. Only the Polar Bear movie house-dance hall and a music store are somewhat removed from downtown Barrow.

The prime commercial corner in Barrow is at the intersection of Kiogak and Agvik Streets

1. Exclusive of the airport and federal agency land.



LAND TENURE
BARROW, ALASKA
JULY, 1970

- Federal
- State
- Townsite Trustee (Including uncolored lots and platted streets)
- Restricted – Native (Need Bureau of Indian Affairs Approval to Sell)
- Unrestricted – Native and Non-Native

Note: *Barrow is surrounded by Naval Petroleum Reserve No. 4*

Sources: *Bureau of Land Management and Townsite Trustee, July, 1970; Naval Arctic Research Lab; State Department of Aviation.*

(between the bank and Al's Cafe). This corner tends to be a meeting place for local pedestrian and vehicular traffic and that from the Navy lab and camp. It is also a sort of unofficial taxi stand. The presence of the BIA grade school at this corner and the nearby hotel further add to the concentration of activity in the area. But the school and some of the older homes tend to inhibit future commercial expansion and development. Both should ultimately be relocated as the commercial uses expand. If the commercial area expands, existing homeowners should be compensated and new homesites should be provided, possibly under an urban renewal program.

One major problem in residential land use is the enclaves of housing constructed for federal employees in Barrow. Two of the major enclaves (PHS and BIA) appear to be carefully insulated from the surrounding community, in contrast to the homes of the more permanent white residents of Barrow which are scattered among the Native homes. The Navy lab and camp housing is even more isolated from the community.

One anthropolgist noted some of the problems caused by the isolation of the BIA teachers' residences:

> *Additional complications in teacher/community relationships stem from the fact that the BIA school buildings, while extremely modern and located only 200 yards from the main street in Barrow and from the major gathering place in the village (the soda fountain), seem to be surrounded by an invisible moat. That is, some of the BIA school teachers are reputed never to have been 'downtown', and most are reputed never to have spent a social evening with any of the Eskimos in the community. This 'enclave' attitude embitters many local people and suggests to them condescension and attitudes of superiority on the part of BIA personnel.* [1]

Most of newer residential development in Barrow is well located in quiet areas. Lots are of ample size for an Arctic community. Even the older areas were thinned out by a BIA-sponsored house moving program in conjunction with the BLM townsite survey in 1963.

It is possible that the homes were overly thinned out. The city council followed a policy of allowing each householder whose house was to be moved from a platted street right-of-way the right to select a vacant lot anywhere within the platted area. This meant that additional acres of residential land were used up with no direct increase in population. Much of the land gained through the housing relocation program was wasted in providing the rights-of-way for a street system with a uniform width of 60 feet.

In conclusion, Barrow's land use pattern in general and its commercial concentration in particular are superior to many other rural Alaskan communities. The real problem in Barrow is providing room for growth when so much of the land is locked up by the federal and state government.

In contrast to the rather logical land use, the street system in Barrow is very poorly laid out. There are too many streets, especially in the downtown area, and the layout is

1. *Barrow and Kotzebue: An Exploratory Comparison of Acculturation and Education in Two Large Northwestern Alaska Villages,* p. 28.

inefficient and in conflict with some normal travel routes.

Within Barrow proper (exclusive of Browerville) there are about 40 acres of street rights-of-way and only 39.3 acres of developed residential and commercial lots. When parking is included, well over half of downtown Barrow[1] is being used for vehicles. This is in spite of the fact that less than 15 percent of the city's Native households have the use of a private automobile or truck.[2]

It thus appears that downtown Barrow may not be fully serving its function as a meeting place and a pedestrian and shopping area. Rather, much of it is being used to accommodate through traffic and vehicles from the various federal and state agencies in the area.

One of the reasons for the poor street layout in Barrow is the fact that most of the buildings were there before the present streets were platted by the BLM in 1963. The 1964 Barrow plan noted some of the difficulties faced by the BLM and the city when it came to laying out streets:

> *The helter-skelter and close-packed arrangement of structures made the job formidable. By regulation and by common sense, the BLM required that each lot have direct access to a public way – and there were few places for public ways that did not require the removal of a house or two.*
>
> *An arrangement, using 40-foot street rights-of-way and requiring the movement of only five or six houses, was presented to the people by the BLM and was approved at a public meeting.*
>
> *Later, however, money became available through the Bureau of Indian Affairs for a street-building and house-moving program. The money was contingent upon a plan using 60-foot street rights-of-way. The proposal to re-plan the streets was accepted by the BLM on July 2, 1963 and the change to a '60-foot layout' was ratified by the Barrow citizens at a general meeting, July 9, 1963.*[3]

The BLM's original decision on 40-foot rights-of-way was adequate for some minor streets, especially since Barrow has a low volume of vehicular traffic and an environment which denotes a compact form of development. Today, although there does seem to be a sort of main route for traffic from the airport to the post office to the main commercial corner and out to the Navy lab and camp, this route is not clearly defined and minor streets are not really isolated from the major system. (See map on page 66 .)

The almost uniform 60-foot right-of-way width and the lack of cul-de-sacs and city ordinances make it hard to separate heavily traveled streets from those of a more secondary nature. The heavy dependency of the Native population on snow machines and walking further complicates the problem of defining distinct travel routes in the city.

1. Survey Blocks 28–30.
2. ASHA Survey, December, 1969.
3. E. F. Rice, J. Ronald Saroff and William B. Fuller, *Barrow Community Development Study,* University of Alaska, College, Alaska, March, 1964, p. 29.

Table 8

EXISTING LAND USE [1]
BARROW, ALASKA
1970

Land Use	Barrow Proper Acres	Barrow Proper Percent of Developed Area	Browerville Acres	Browerville Percent of Developed Area	Total Acres	Total Percent of Developed Area
Streets	40.0	(20.2)	25.1	(31.5) (Includes Alleys)	65.1	(23.4)
Residential	35.5	(17.9)	8.2	(10.3)	43.7	(15.7)
Residential – Commercial, Office	1.1	(.6)	–		1.1	(.4)
Commercial	2.7	(1.4)	.5	(.6)	3.2	(1.2)
Transportation Warehouse & Utilities	3.3 [2/]	(1.7)	.3	(.4)	3.6	(1.3)
Public and Churches	65.2	(32.9)	7.4	(9.3)	72.6	(26.1)
Federal Agencies	30.9	(15.6)	–		30.9	(11.1)
Vacant – Trade & Manufacturing Survey	–		10.3	(12.9)	10.3	(3.7)
Vacant Surveyed Lots	19.2	(9.7)	28.0	(35.1)	47.2	(17.0)
TOTAL	197.9	(100.0)	79.8	(100.1)	277.7	(99.9)

1. Area subdivided by the Bureau of Land Management in 1963, plus the remainder of the developed area within the Barrow townsite.
2. Total does not include 491 acres presently developed for the airport and its approach zones. The total state airport withdrawal is 732 acres. Total does not include the land being used for the BIA utility buildings. This is included under the federal land use.

Source: Alaska State Housing Authority.

While Barrow has some potentially dangerous intersections, especially the five-point intersection between the post office and the Weather Bureau, the generally low volume of traffic could tend to minimize these conditions. One or two prime vehicular traffic routes should be established through or around the city. Then the remainder of Barrow could be developed to better serve the needs of pedestrians and snow machine operators.

Proposed Land Use and Streets

Barrow's main land use problem is not the arrangement of structures and roads, but rather the lack of contiguous expansion areas. Besides being blocked off on land, Barrow residents have noted with concern that the beach has been moving in at about 10 feet per year.

What can be done? One solution would be to move the whole town to a better site. According to some spokesmen from the Naval Arctic Research Laboratory, the closest suitable site is at the Rogers-Post Monument, 10 miles to the southwest.

Moving the entire town would solve the problems of overcrowding, beach erosion and ice-rich permafrost building sites. But this solution must be rejected almost immediately. The cost is beyond the means of any program now in existence. According to Dr. Max Brewer of NARL, the "down-payment" on such a move would be $100 million.[1] This would amount to a cost of at least $50,000 for every man, woman and child in the city. If such amounts of money were invested in housing, streets, sewer, water, transportation and recreation, etc., the existing city could be a very desirable place, even under considerably higher densities.

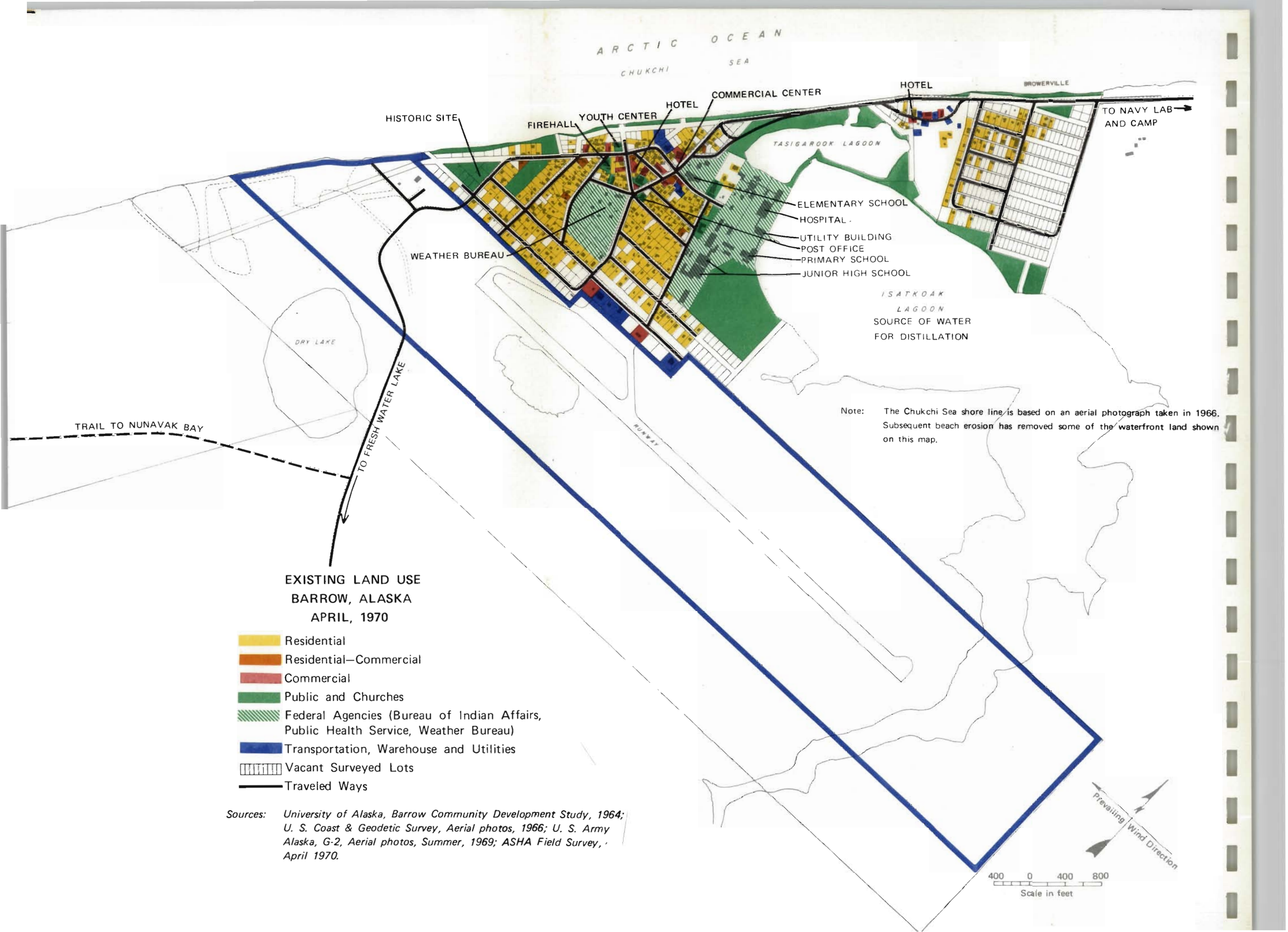
If anything should move, it is the Naval Arctic Research Laboratory. This facility is more self-contained and less historically oriented to the site than the City of Barrow. Although the lab and camp provide a lot of employment in Barrow, road or perhaps rail transportation could link the city to a new NARL complex near the monument.

Assuming that no one moves, Barrow will have to begin to develop as a much more compact city. Sprawling suburban-type subdivisions are not practical in the Arctic, especially in Barrow. Land will have to be used wisely and well.

One less costly alternative to a complete move of the town is an urban renewal project for the central area of Barrow. (See the map on page 67 .) Such a project could use federal funds to help in moving, demolishing and rehabilitating buildings, paving streets, assembling land and putting in a sewer and water system. It could assist in establishing a higher density commercial center with perhaps a fringe of medium density residential and office development. Urban renewal projects are very complex in nature, however. The Barrow City Council should work closely with the Alaska State Housing Authority and the Department of Housing and Urban Development to investigate the various costs and benefits of a project.

Although this plan contains a proposed land use and streets map on page 67 , actual regulation of land use will not begin in

1. Personal communication.

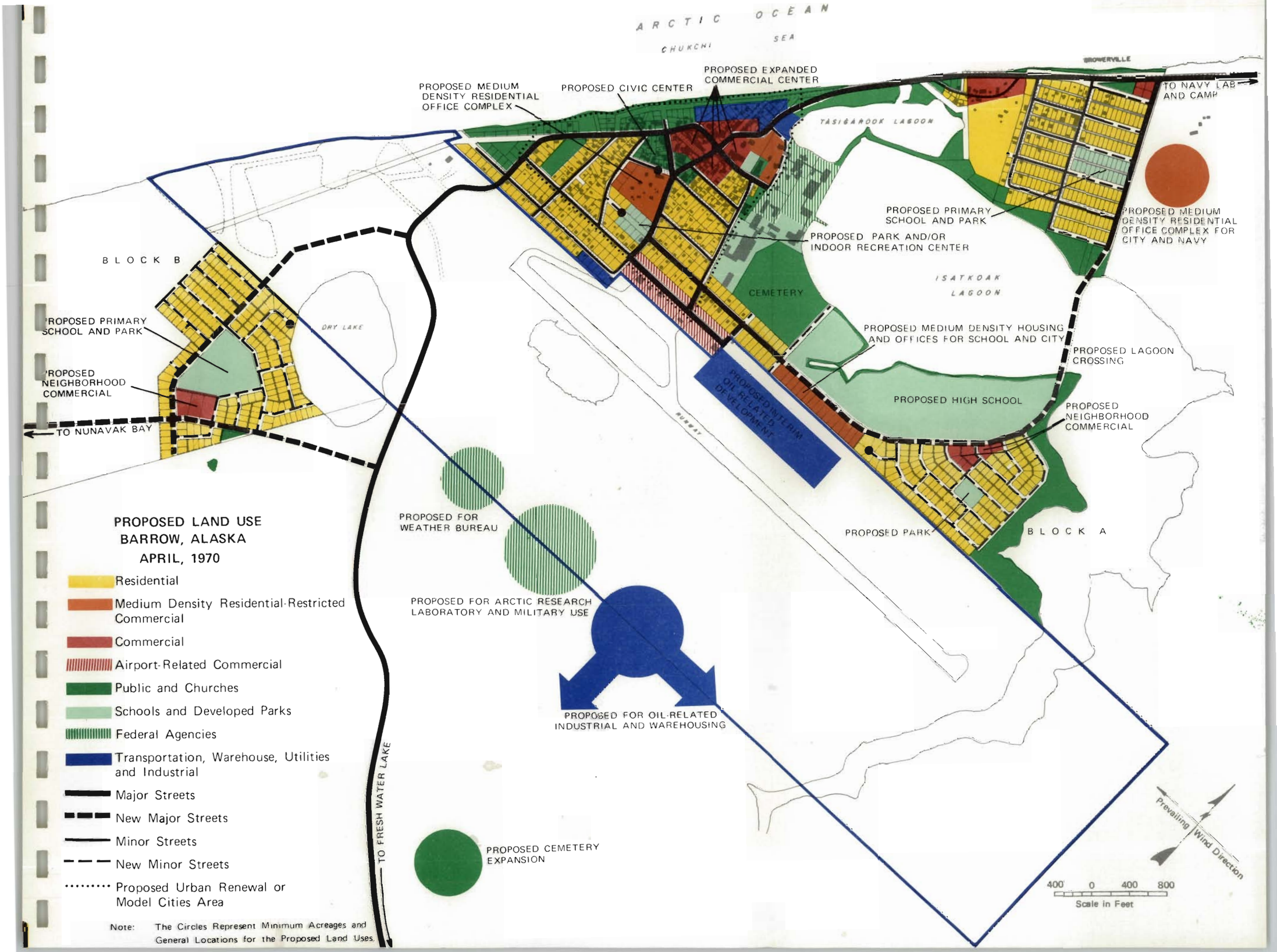


Note: The Chukchi Sea shore line is based on an aerial photograph taken in 1966. Subsequent beach erosion has removed some of the waterfront land shown on this map.

EXISTING LAND USE
BARROW, ALASKA
APRIL, 1970

- Residential
- Residential—Commercial
- Commercial
- Public and Churches
- Federal Agencies (Bureau of Indian Affairs, Public Health Service, Weather Bureau)
- Transportation, Warehouse and Utilities
- Vacant Surveyed Lots
- Traveled Ways

Sources: *University of Alaska, Barrow Community Development Study, 1964; U. S. Coast & Geodetic Survey, Aerial photos, 1966; U. S. Army Alaska, G-2, Aerial photos, Summer, 1969; ASHA Field Survey, April 1970.*



PROPOSED LAND USE
BARROW, ALASKA
APRIL, 1970

- Residential
- Medium Density Residential-Restricted Commercial
- Commercial
- Airport-Related Commercial
- Public and Churches
- Schools and Developed Parks
- Federal Agencies
- Transportation, Warehouse, Utilities and Industrial
- Major Streets
- New Major Streets
- Minor Streets
- New Minor Streets
- Proposed Urban Renewal or Model Cities Area

Note: The Circles Represent Minimum Acreages and General Locations for the Proposed Land Uses.

Barrow until the city council adopts and enforces such things as zoning ordinances and subdivision regulations. Without local initiative and enforcement, a proposed land use map is just a lot of pretty colors on a piece of paper.

The proposed land use map is not a zoning map. Rather, it is a generalized projection of which land uses should go where and in roughly what quantity. Major streets are designated to serve the more intensely used commercial, governmental, transportation and storage areas, in addition to major attractions outside the city limits.

Land use proposals are made in the following classification:

· Public (Waterfront)

Because of the eroding beach and the possibility of flood damage from severe summer storms, most of the waterfront land is labeled public to be held in municipal reserve. While much of the land so designated is now under private ownership, it should be acquired by the city as it becomes available.

With proper zoning regulations, the existing businesses and residences on the waterfront would not be penalized. However, the owners could be prohibited from: rebuilding in case a structure was burned or otherwise destroyed, making substantial additions to a building, or reusing a structure that had stood vacant for some time.

The only major intrusion into the waterfront reserve is a tract of warehousing and transportation land to the north and west of Al's Cafe and the Native Co-op store. This could be used for storage and other uses related to the goods which arrive in Barrow via water.

The proposed municipal waterfront reserves will replace similar reserves designated by the BLM in 1963. Much of these reserves has already been lost to erosion. Barrow needs additional waterfront reserves until some agency such as the Corps of Engineers comes up with the funding to implement a beach protection project. Until that time, further development of the waterfront area is a risky proposition. While Barrow's waterfront would be a prime development area under normal circumstances, the continuing beach erosion makes it all but worthless.

The Corps of Engineers requires land use regulation in flood prone areas before a community can qualify for federally subsidized flood insurance. This is yet another reason for Barrow to pull back from its waterfront.

· Public (Parks and Recreation)

Several parks and recreation areas are proposed on the map, including one next to the Presbyterian Church, one each in the new subdivisions of Block "A" and Block "B" and one in the area now occupied by the Weather Bureau. The Weather Bureau site could be used for a hockey rink and indoor recreational complex, somewhat similar to the one suggested by the Barrow Jaycees at the Interagency Conference in February, 1970. A primary school site is suggested in Browerville. This could be used for a park if the school is not built. Vacated waterfront areas could be used as community open space for parks, sports and festivals.

· Public (Cemetery)

The present cemetery takes up about 15 acres and the Barrow City Council said that more space is needed. The BIA has requested a

small withdrawal of 10 acres of land on the road to the fresh water lake. This should be used for cemetery expansion.

· Public (Civic Center)

The block containing the firehall and the Catholic Church should ultimately be used for a civic center. This could include a joint state and city building which could be used for police and troopers and as a city hall. The civic center could also contain office space for various state agencies.

If and when a North Slope borough is established, the seat of government will probably be Barrow. Such a borough could have its headquarters in the civic center which could then expand toward the Weather Bureau, if this agency is moved to another location. While the civic center area is rather small (2.1 acres), it should be intensely developed with multi-story buildings wherever possible.

· Federal Agencies and Schools

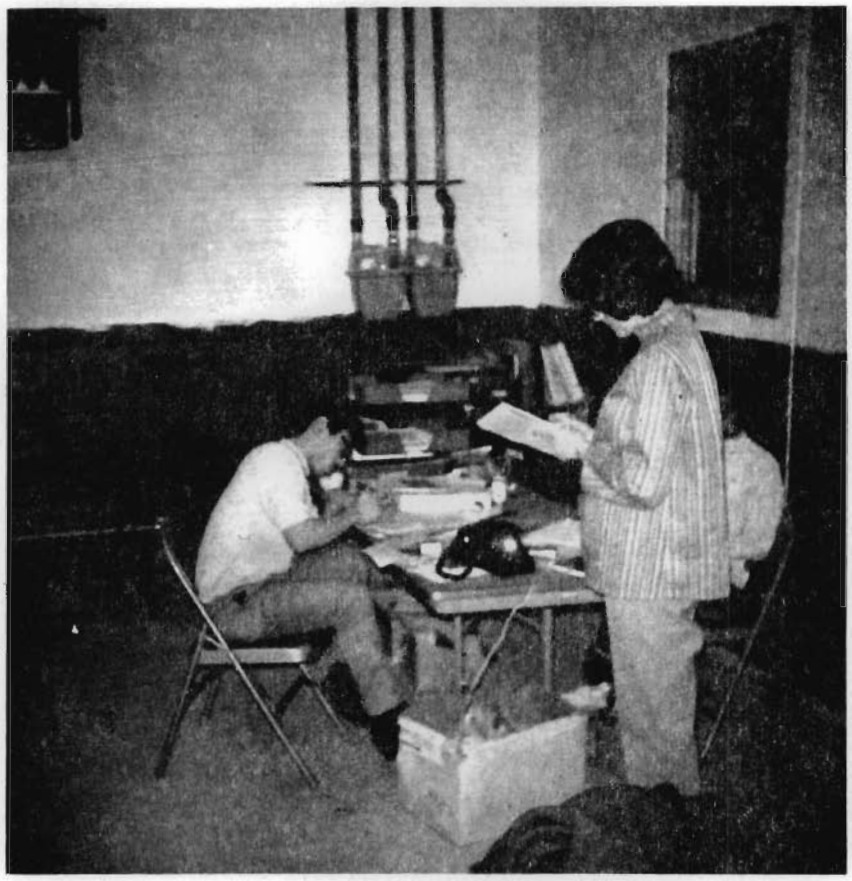
A major land use proposal in this classification is the relocation of the Weather Bureau from Barrow's central area to a new site somewhere to the south of the airport. This would open up some eight acres of prime land for residential, recreational, restricted commercial and office development. The present Weather Bureau site would be an excellent place for the oil companies to develop new housing and offices. It would also be possible to accommodate some 10–20 units of federally subsidized Turnkey housing in this area.

The Weather Bureau estimates that it would cost over $1 million to move their entire complex to the other side of the airport. However, if only the operations equipment and facilities were moved, the Weather Bureau estimates that the cost would be lowered to about $250,000. The housing could stay behind and be integrated into the residential and restricted commercial area. Congress would probably have to provide special funds to finance the move, although an urban renewal project could assist in acquisition and demolition. The state and the BIA might also be able to make a financial contribution.

Another major proposal in this classification denotes approximately 50 acres of land in Block "A" to be used for a new regional high school. The Barrow City Council is reserving another 10 acres or so at the north end of the subdivision in the event that the new school complex needs more land. If the school doesn't require additional land, the area will be used for private residential development. The neighborhood commercial area should stay in any event. Because Barrow is so short of land, every effort should be made to limit the new school to a maximum of 50 acres. A multi-story building concept should be used if at all possible.

· Residential

The proposed land use map contains 137.2 acres of land designated for purely residential purposes. In the existing townsite, only 43.7 acres of residential land are presently developed. In addition, 12.1 acres are proposed in mixed medium density residential and restricted commercial areas. Given some townhouse and modest apartment-type development, Barrow should have ample residential land to serve its population for at least the next 10–20 years, although land in Block "B" will be somewhat remote from the community and difficult to service. Blocks "A" and "B" contain over 325 low density residential lots, enough to accommodate some 1,900 residents at six people per lot.



Alaska State Housing Authority

There is a shortage of office space and facilities in Barrow. State and federal agency personnel often have to share the same office.

The subdivision of Block "A" was designed with minimum lot sizes to make it more economically feasible to install sewer and water lines. However, if these utilities are not imminent when development starts, the city council and the townsite trustee should try to issue deeds on every other lot. This would leave additional space around houses for honey buckets, ice blocks, etc. A public sewer and water system is desperately needed in Barrow. However, people should not be forced to live in a compact urbanized subdivision while they are still on a primitive rural sanitation system.

The land use proposals envision an ultimate pullback of residential uses from the waterfront and the downtown core. While this pullback will probably never be complete, the additional land in Browerville and Blocks "A" and "B" and the possible relocation of the Weather Bureau should more than compensate Barrow's residential inventory, and still allow for expansion through 1980 and beyond.

A number of acres in Thomas Brower's trade and manufacturing site in Browerville are also proposed for future residential development. This could be done in a private residential subdivision, assuming that soil conditions will merit such development and that a legal road access is established with the rest of Browerville.

Examples of restricted commercial uses include offices, small grocery stores, barber shops, etc. These types of uses do not usually conflict with nearby residences. Examples of more conflicting commercial uses include dance halls, service stations and major stores.

· Medium Density Residential and Restricted Commercial

This classification reflects Barrow's growing importance as a federal, state and possibly borough administrative and service center. Oil-related activities could further add to Barrow's service economy. Two major problems exist today. First, there is an acute shortage of office space. Second, most of the federal housing is located in separate non-Native complexes. Several residential and restricted commercial areas are suggested to meet these new needs. Housing in such areas should be built at a higher density, if possible. Townhouses and small apartments would be appropriate. The units should be occupied by both Natives and non-Natives.

The area across the street from the new school could be used to house teachers and boarding students. The area behind the Presbyterian Church could be used by PHS employees and other residents of the community. The circle north of Browerville is not located in any specific area. It is merely a suggestion that the Navy build its residential units and some offices in an area closer to Barrow. A Native corporation might be formed to build the housing and lease a portion of the units to the Navy.

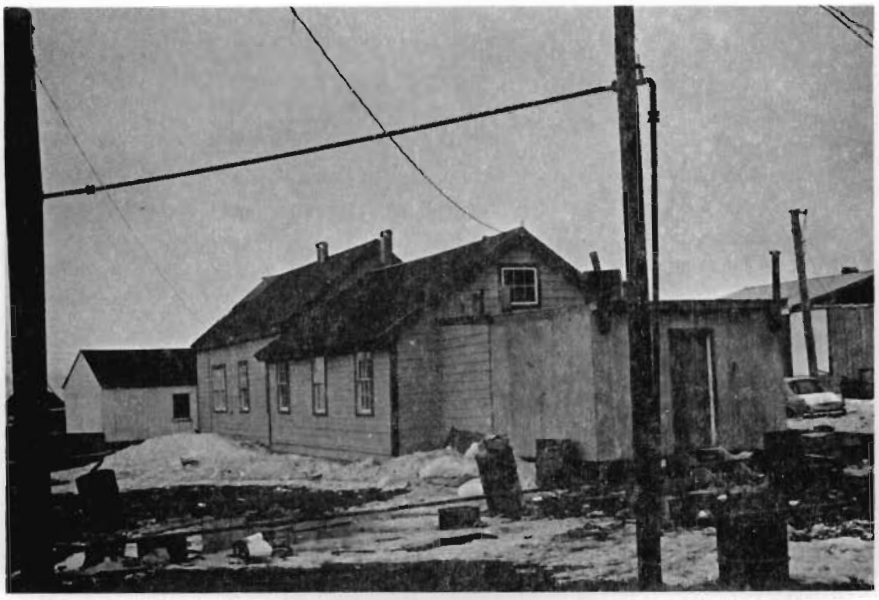
· Commercial

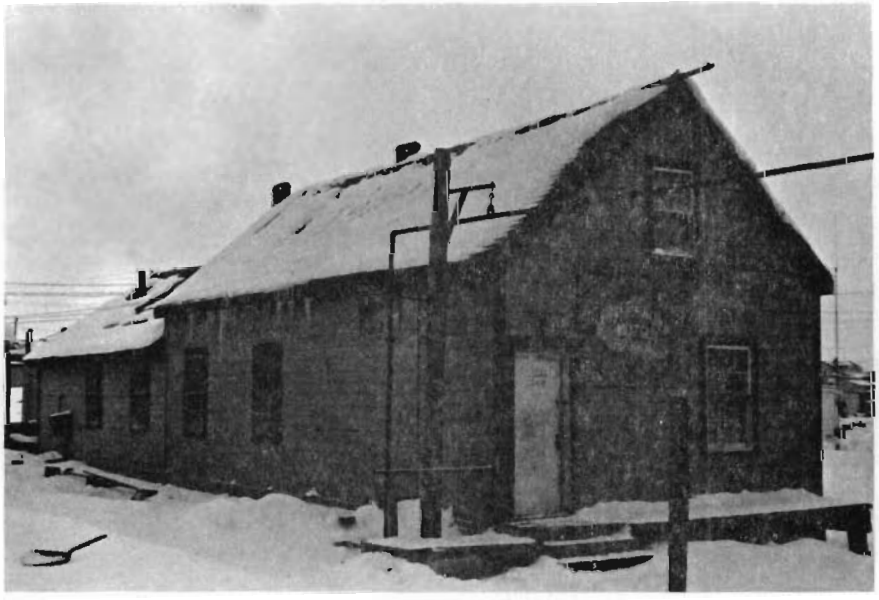
The proposed land use map recommends a total of 15 acres for commercial purposes. This includes most of the land now occupied by the BIA elementary school. Presently, there are some 3.2 acres of commercial uses in the community. The proposed increase reflects the growing importance of Barrow as a service center, as well as greater sophistication on the part of local consumers.

Even though additional acreage is recommended for commercial uses, such development should be as compact as possible. The city council could use zoning to channel commercial development into such a pattern. If the BIA elementary school actually is moved, the city could possibly cut back on some of its other commercial areas. Commercial uses which are ultimately pulled back from the waterfront, should relocate in the central downtown area if at all possible.

The new hotel should be located on the site of the existing Top of the World Hotel. Additional residential lots should be acquired by the developers of the site. A new hotel in the same location would be close to the central business area, the civic center and the Arctic Ocean.

The airport-related commercial area should be reserved for such uses as a new terminal





Alaska State Housing Authority

The existing hotel in Barrow is inadequate, but well-located close to stores, offices and the waterfront. The new hotel should be built on this site.

building, parking, air taxi offices and possibly a supplementary airport hotel. Commercial uses not directly related to the airport should be located downtown. Small neighborhood stores, etc. could be located in the designated commercial areas in Blocks "A" and "B". The commercial area in the northeast corner of Browerville could be used for a service station if a major road connection is made across the lagoon from Browerville to Barrow.

· Transportation, Warehouse, Utilities and Industrial

This classification is dominated by the airport development. Barrow doesn't have any real industrial uses at present, but such uses could ultimately fall in this category. Major industrial development related to the oil industry should occur around the airport since this is Barrow's only year-round transportation link. The Navy lab and camp and other military agencies should seriously consider participation in the future development of the Barrow airport.

Major industrial development should go south of the airport. But an interim industrial area could also be developed north of the runway to the east of the present terminal.

The transportation and storage area downtown behind Al's Cafe is related to Barrow's supplies which arrive by water. A joint warehouse for downtown merchants could be considered in this location. Intensive development of this area should not take place until the Corps of Engineers has investigated the potential danger from floods and erosion. If the land is found to be unsatisfactory for long-range development, the community might consider pushing for the relocation of the BIA elementary school and using the vacated land for transportation and storage purposes.

· Major Streets

While Barrow has a relatively low volume of vehicular traffic, a system of major streets is needed so that the trucks and other vehicles do not wander at random through quiet residential areas. The major owners of vehicles are the federal agencies, especially the Navy lab and camp. Presently, these vehicles are attracted to Barrow for the post office and various commercial services. There is some attraction for the Barrow airport, but this is lessened because the Navy has its own airport out at the camp.

At some future date, the inefficiency of having two major airports in the Barrow area may prompt more Navy utilization of the Barrow airport. Oil-related development at the Barrow airport might also increase interaction with the Navy research facilities. The proposed land use map on page 67 suggests a major street pattern to connect the airport with the post office, the downtown commercial area, Browerville and the Navy lab and camp. A major street could be extended to serve development on the south side of the airport runway. It could also be the starting point for a road out to the Will Rogers – Wiley Post Monument 10 miles down the coast toward Wainwright.

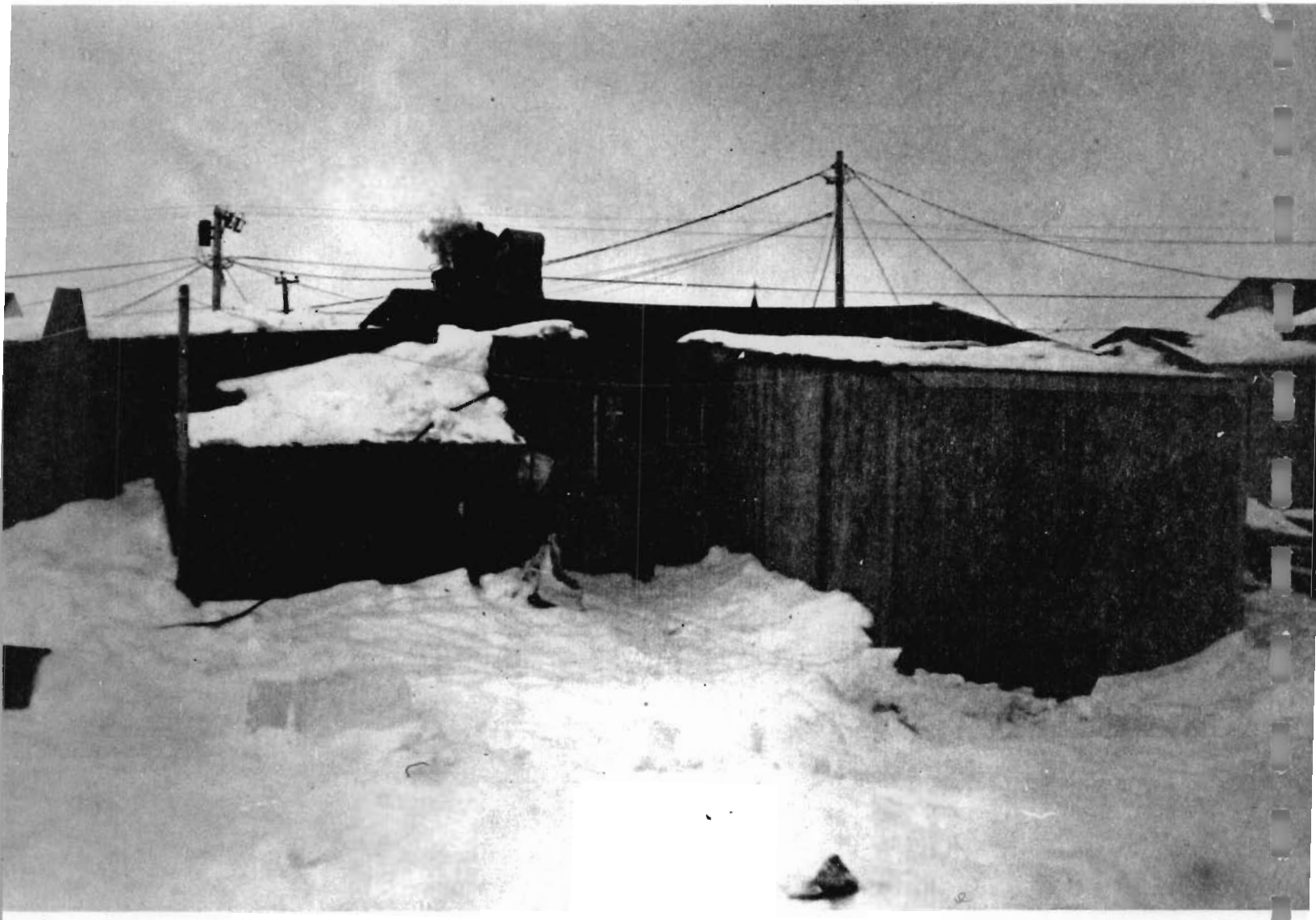
In the long run, it might be wise to consider a more inland road connection between the Navy lab and camp and Barrow. The existing road to the gas wells could be improved and extended around to Barrow, perhaps coming back to hook up with the road to the fresh water lake at a point south of the airport runway. (See the regional map on page 59 .) The availability of road building materials and gravel would be a prime factor in the construction of this or any other new roads.

· Minor Streets

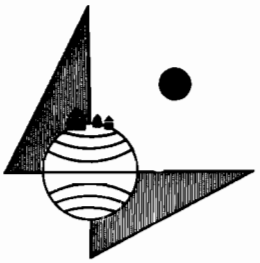
Barrow should consider designating a series of minor streets. These would include all the streets not in the major street system described previously. Such streets should be legally closed to heavy truck traffic, except in case of fire or other emergencies. They should be used mainly by private vehicles, snow machines and pedestrians.

One proposed minor street would help to reduce the danger from the present five-street intersection between the Weather Bureau and the post office. If the street running between the Weather Bureau and the Catholic Church was turned into a cul-de-sac or dead end, it would reduce the amount of traffic entering and leaving the intersection. This proposal could be carried out if and when the Weather Bureau vacates the land. A more immediate solution might be to install several poles or buffers into the street at a width which would stop automobiles and trucks short of the intersection, but still allow snow machines to pass.

Housing



Alaska State Housing Authority



HOUSING

Quantity and Quality

> *. . . they (the missionaries) were urging the natives to live in frame houses like white people. This meant heating by stoves, and as driftwood continued scarce as hens' teeth, the result was that the wooden shacks were usually cold and drafty, with much pneumonia ensuing. They weren't half so practical as the old-style native igloos which generations of trial and error had developed for just such conditions, and in which an even day-and-night temperature could be maintained by stone lamps.*[1]

As Charlie Brower so aptly points out above, housing in Barrow is part of the cultural and social development of the community. It cannot be evaluated or improved in isolation from other factors. Brower was speaking about the turn of the century, some 70 years ago. But the basic problem still remains. While Barrow's 310 houses include some of the best in Northwestern Alaska, much of the housing stock is ill-suited for the extreme environment and large families found in the community.

Under some definitions, all of Barrow's housing could be rated substandard since there is no public water or sewer system. The only residences served by water and sewer lines are the 35 BIA and PHS units in the separate federal compounds. The Weather Bureau will install a separate $50,000 sewer and package treatment system for its six housing units during 1970. Federal housing is not included in any of the statistics presented in this section.

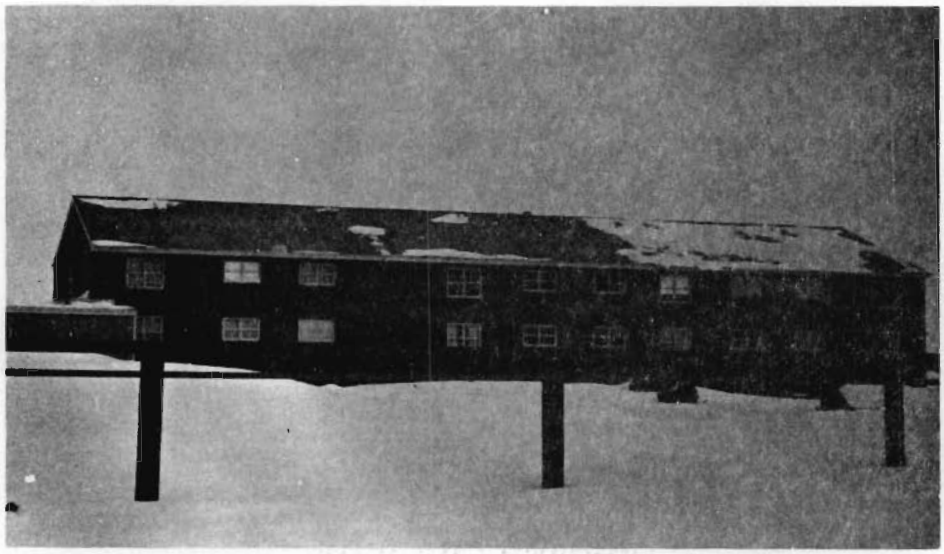
Even the white and mixed families who live in the community have better housing than the Natives. Almost 60 percent of the non-federal white or mixed family housing in Barrow was rated as sound in a 1969 ASHA survey. Only 19 percent of the Native housing was rated as sound in the same survey.

Most of Barrow's housing (close to 60 percent) is deteriorating. This means that the units were originally of reasonably sound construction but that they now need major repairs. It is doubtful that the cost of repairing many of these homes is economically justified.

While only about 20 percent of Barrow's housing stock is listed as dilapidated, this is no cause for complacency. It means that as many as 400 people in Barrow are living in housing which threatens their health and safety. With few exceptions, Barrow's dilapidated housing is Native housing.

Aside from structural condition, the major housing complaint in Barrow is the lack of space. During the 1969 housing survey, almost half of the Natives interviewed said their home was too small. The statistics from the survey back up this complaint. There are 6.2 people per Native household in Barrow, compared with the 1960 state average of 3.5 persons per occupied dwelling unit.

1. Charles D. Brower, *Fifty Years Below Zero,* Dodd, Mead and Company, New York, 1942, p. 232.



Alaska State Housing Authority

Alaska State Housing Authority

BIA teachers' quarters (above) and Weather Bureau housing (below).

Alaska State Housing Authority

Alaska State Housing Authority

Housing of Barrow residents.

Table 9
CONDITION OF HOUSING UNITS
BARROW, ALASKA
1969

Condition	Number of Units	Percent of Units Reporting
Sound	54	22.0
Deteriorating	144	58.8
Dilapidated	47	19.2
Sub Total	245	100.0
No Information	65	
TOTAL	310*	

* This includes all the houses in Barrow which are served by Barrow Utilities Incorporated. These houses are occupied by Native, white and mixed families. The total does not include housing units in the various federal compounds, which are primarily occupied by whites.

Source: ASHA Survey, December, 1969.

The average Native home in Barrow is only 642 square feet in area. Actual living space is even less because much of the floor space is used for storage and furniture. Excluding kitchens, there are only three rooms per unit which means an average of two persons per room. Sometimes room dividers are little more than blankets hung from the ceiling. Anything over one person per room is usually considered overcrowding. Therefore, the average Native home in Barrow is overcrowded.

Obstacles and Solutions

All of the typical obstacles to more and better housing in rural Alaska exist in Barrow. In addition, there are a number of special obstacles for the northernmost city in the United States. (See table 11 which compares the climate and construction costs in Barrow with various Alaskan and other U.S. cities.)

Special emphasis in this housing section is given to the most critical obstacles: the lack of credit especially for lower and moderate income families, and the lack of coordination between agency housing programs and the needs of the local people.

The following general obstacles, taken from ASHA's statewide housing analysis, all apply to Barrow. Details on many of these obstacles can be found in other sections of this plan. The permafrost obstacle, for example, is discussed in the section on the physical setting, starting on page 21. Population growth is analyzed in the section on people on pages 39–43, and the high cost of utilities is described in the city section on pages 133–145.

STATEMENT OF OBSTACLES:

The obstacles to housing progress are listed below, according to their origin in

Table 10
WATER AND SANITARY FACILITIES IN NATIVE HOUSING
BARROW, ALASKA
1969

Facilities	Units Where Available*	Total Units Responding	Percent of Total
Cold Running Water	23	225	10.2
Hot Running Water	22	225	9.8
Private Flush Toilet	1	225	.4
Private Bathtub and/or Shower	25	223	11.2

* These facilities were all installed privately by the individual householder.

Source: ASHA Survey, December, 1969.

socio-economic, institutional or physical causes:

Socio-Economic:

1) Low income families and many moderate income families are not able to pay the full costs of decent housing.

2) Unemployment, particularly seasonal unemployment, is a severe problem in many remote communities. As a result, the usual pattern of monthly rent-paying or mortgage-paying is inconsistent with the cash-flow of native families. Unfortunately, housing construction is mainly seasonal and must occur during the very summer months when most natives have their only regular gainful employment.

3) Public funds now available from federal, state and local governments to provide decent housing for all families are not adequate for that purpose.

4) Rapid population growth, particularly within the population groups enduring the poorest housing conditions (that is, low-income and minority groups) is outpacing the capacity of existing programs to improve housing and is steadily adding to the magnitude of the State's housing and housing related problems.

5) The costs of transporting building materials are

disproportionately high, especially to the remote communities, but are necessitated by the scarcity of suitable locally produced building materials.

6) The smallness and dispersion of the remote communities precludes possible economies of large scale building operations.

7) Water supply and sewage disposal facilities must be provided in addition to housing. Freezing conditions dictate expensive installations.

Institutional:

1) The sources of financial credit, both for potential homebuyers and for builders, are inadequate. Most remote communities lack banking institutions.

2) Planning and operational responsibilities in matters that affect the development of the the native communities are dispersed in a variety of public agencies (ASHA, BIA, PHS, etc.), making inter-agency coordination difficult and necessary if programs directed at housing and housing related problems are to be integrated into the developmental process.

3) Basic community service facilities and programs ancillary to housing but essential for full community life are frequently inadequate.

4) In the native communities, the institutions of local government for public decision-making according to Anglo-American traditions may be embryonic or absent.

Physical:

1) Climatic and topographical conditions peculiar to Alaska require special and expensive construction techniques.

2) The construction industry and construction programs are restricted by the short building season.[1]

Credit is a major problem in rural Alaska, even in a relatively affluent community such as Barrow. One of the few bright spots in the Barrow housing picture has been the activity of the Farmers Home Administration. During the past three years FHA has made 70 loans totaling about $650,000. About 50 of these loans were for prefabricated new homes, while the other 20 were for repairs to existing homes.

FHA makes rural housing loans only to applicants who are unable to obtain the credit they need from private and cooperative lenders. The extent of their activity in Barrow would indicate that private residential mortgages are relatively scarce in the community.

According to Farmers Home Administration policy, a minimum income of $7,500 is usually necessary for a person to obtain a home loan in Barrow. Terms on the Barrow loans were up to 33 years at an interest rate of from 5 to 6¼ percent.

1. Alaska State Housing Authority, "Initial Housing Element," submitted to the Department of Housing and Urban Development, Anchorage, Alaska, November, 1969, pp. 4–6.

Table 11
SEVERITY OF CLIMATE RELATED TO HOUSING AND CONSTRUCTION COSTS
BARROW AND SELECTED ALASKAN AND U.S. CITIES
1966

	Degree Days,* Normal Year	Mean Daily Minimum Coldest Month	Consumer Housing Costs B.L.S.** (Seattle=100)	Construction Cost Index Army Engineers (Seattle=100)
BARROW	20,174	−24.4°F	N/A	360
FAIRBANKS	14,279	−21.4	141	190
ANCHORAGE	10,648	− 1.0	130	170
Duluth	10,000	− 0.6	N/A	N/A
JUNEAU	9,075	4.3	135	180
Minneapolis	8,382	2.3	101	N/A
Milwaukee	7,635	12.8	109	N/A
Portland, Me.	7,511	11.7	99	N/A
SITKA	7,464	28.8	N/A	180

* A degree day is a deviation of one degree for a period of one day from the standard of 32 degrees, the freezing point of water.

** Bureau of Labor Statistics

Source: Federal Field Committee, *Studies on Alaska Regional Inflation*, Anchorage, Alaska, July, 1969.

The FHA homes in Barrow were prefabricated and shipped up from Seattle on the BIA ship North Star. Usually, the people themselves put up the house. Cost of the housing kits ran from $7,600 for a two-bedroom unit to $12,500 for a three-bedroom unit. This included some $2,000 to $3,500 in shipping costs per unit. The general maximum allowable floor space in a FHA-financed house is 1,400 square feet. Some Barrow residents with large families have complained that this is too small.

A state spokesman for Farmers Home Administration said that the agency feels it has just about satisfied the needs for housing of those Barrow residents who have repayment ability. No new home loans were made for the 1970 construction season. Based on average family incomes in the community,

however, it appears that some 70 families may still meet the FHA minimum income requirements. Farmers Home Administration should maintain a regular program of information and field interviews in Barrow to pick up additional mortgages.

Although FHA can finance multi-family units, there have been no applications in Barrow for this type of building. Such units would have to be limited to low and moderate income tenants, with income limits for a family of two running from $11,000 to $12,000. There is a desperate need for rental units in Barrow. Less than 10 percent of the present housing stock is rented.

If surplus rental units ever became available, they could be used to house some of the federal employees in the community and even some of those out at the Naval Arctic Research Laboratory. Community leaders should explore the various programs of the Department of Housing and Urban Development, Farmers Home Administration and other agencies with the idea of building multi-family rental units in Barrow.

Some investors in Barrow have tried to obtain more than one FHA mortgage to build single family houses as rental units. But FHA spokesmen said their usual policy is not to approve such loans.

Aside from FHA, not too much is being done to increase the supply of new housing in Barrow. The local bank has put $100,000 into 20–25 home loans over the past seven years. But the loans have a short five-year maximum repayment period. The Federal Housing Administration has not been active in Barrow, presumably because the community does not have a public water and sewer system. Some of the more wealthy local residents have made individual housing loans, but not in any great quantity. Barrow applied for units under the Alaska State Housing Authority's Remote Housing Program, but was not among the communities accepted.

A federally financed program which seems more applicable to Barrow is the one which provided 200 homes for Bethel and which will soon construct 50 homes in Nome. This is the Turnkey Program which is designed to get new housing units into circulation with a minimum of government red tape. A private contractor assembles the land, builds the units and then sells them to ASHA at a previously determined price.

ASHA purchases the homes with federal money and rents them out to low income families at rates running from about $35 to $100 per month plus utilities. Not only do the tenants pay reduced rent, but they can build up an equity and gain outright ownership of the home in approximately 25 years. Rental units can also be provided for the elderly, a vital need in Barrow.

According to an ASHA survey taken in Barrow in December, 1969, about 70 families qualify for Turnkey housing and would be willing to move into such units when they are built. Barrow has ample land in Block "A" for 50 or more Turnkey units. However, the housing might better blend in with the community if units were built in several areas – some in Block "A", some in Browerville and some on vacant lots within Barrow proper.

Any housing program scheduled for Barrow or any other community or facility on Alaska's north coast should attempt to satisfy regional, rather than just local needs. Various federal and state agencies in the Barrow area have publicly expressed the need for at least 60 new housing units in the near future. This

includes 35 units for the Naval Arctic Research Laboratory (at $50,000 to $100,000 per unit) and 10 units for the Federal Aviation Administration. While these units would probably be of a higher quality and cost than typical Barrow housing, a coordinated plan might involve a housing factory which would turn out components to satisfy all the housing needs in the Barrow area. Such a program would involve considerable savings in materials and transportation.

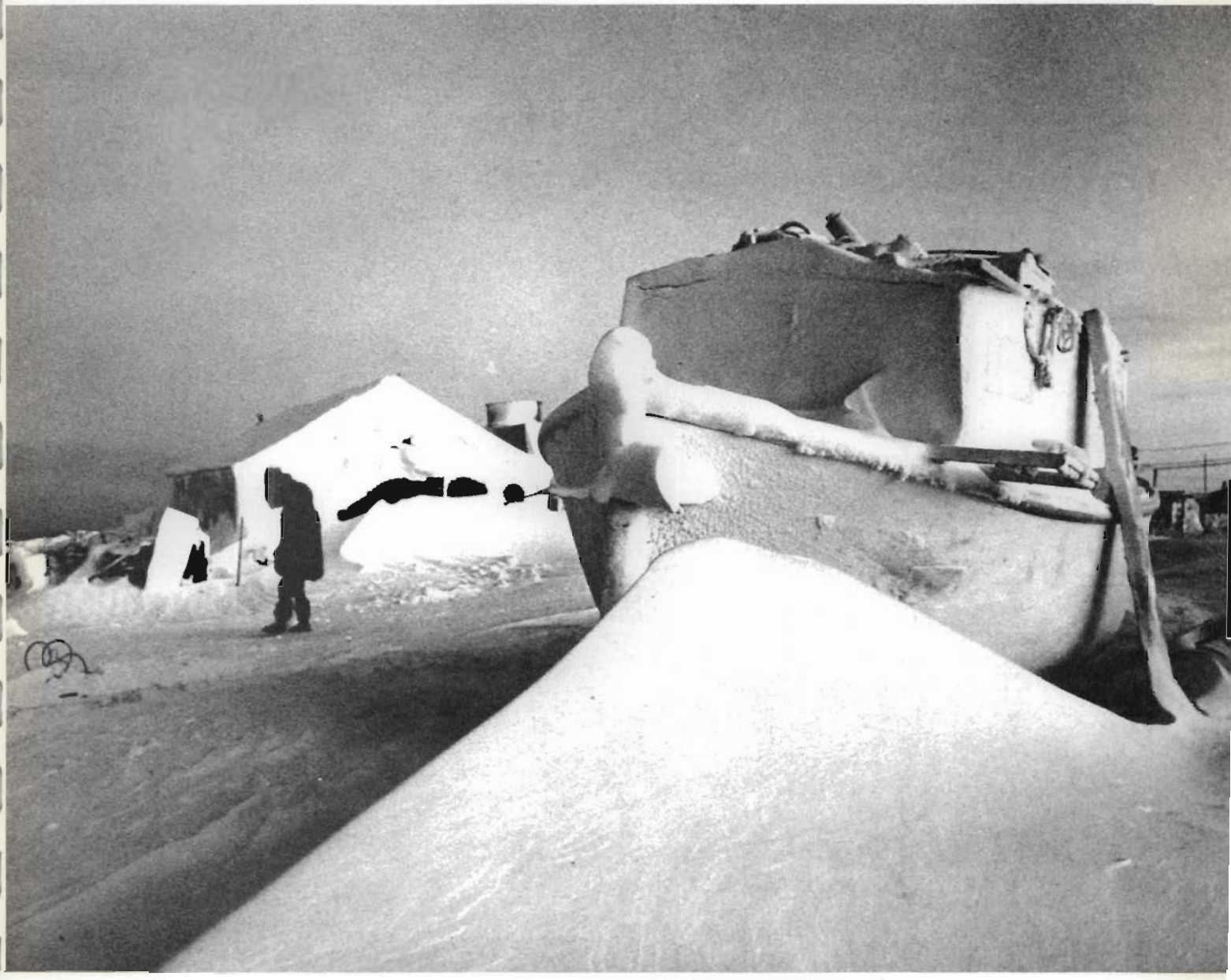
A local housing factory in Barrow could be similar to the one in Bethel which produced the Turnkey houses for that community. Such a factory would provide both local employment and more economical housing. The factory building could perhaps be used for recreational purposes after the houses were finished.

Coordinated action is urgently needed in Barrow to help close the gap between standard agency housing and deteriorating or substandard resident housing. Without some redefinition of housing priorities in the Barrow area, the gap will continue to grow. If obstacles can be overcome for white agency personnel, then they can also be overcome for the local residents.

One well-known housing expert, the late Charles Abrams, noted this problem on an international level, but he could just as well have been talking about Barrow:

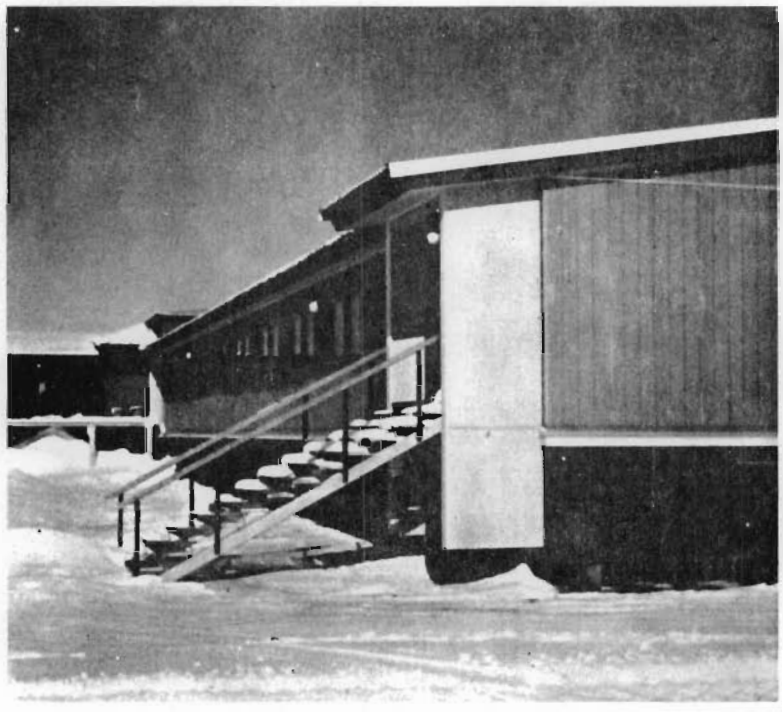
> *In the long run, the economists' 'exceptions' for permissible housing tend to multiply and render their main argument suspect. The resources and capital that these economists wanted to devote to more vital uses are somehow consumed for housing anyway. The pressures and needs for housing are too often so great that more of the scarce resources are consumed than would have been if there were a sensible policy of resource allocation. The employer is often forced to build for his executives or skilled personnel as part of his industrial investment. Each special group – privileged workers, executives, government employees, teachers – demands housing and often gets it, while the rank and file suffer.*[1] *(Underlining added.)*

1. Charles Abrams, *Man's Struggle for Shelter in an Urbanizing World,* The M.I.T. Press, Cambridge, Massachusetts, 1964, p. 109.



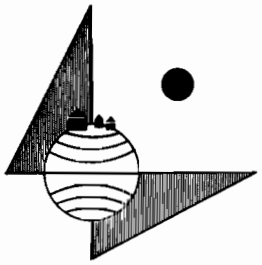
Economy

Alaska State Housing Authority



Alaska State Housing Authority

Point Barrow Base Camp (above) and new Naval Arctic Research Laboratory building (below).



ECONOMY

Economic Base

Compared to many other Native communities, Barrow is relatively affluent. But when analyzed in traditional economic terms, Barrow has an unstable and inadequate economic base. There is no manufacturing and the basic industries are quite different from those usually found in a community of 2,000 people.

Barrow was originally settled because of its proximity to game, especially the abundance of marine life which passes around Point Barrow. Since Barrow is near a point, the ice moves more easily and rapidly than it does at places like Wainwright which are not on a point.

Barrow, unlike many other Native communities, had early exposure to a cash economy: In the late 1800's, commercial whalers arrived in the area and soon after the darting gun and the shoulder gun replaced the traditional harpoon and lance:

> *During the height of the commercial whaling activity the cost of these weapons and ammunition was of little concern since the baleen from a single whale might bring as much as $10,000. After the collapse of the baleen market in the early 1900's the Eskimo still relied on the whale for subsistence and prestige needs, but the cost of ammunition and other supplies effectively limited the number of boat crews hunting each spring. Since the Eskimo either could or would not return to the aboriginal techniques, the number of boats today is governed by a potential crew's ability to raise the $300 to $400 necessary to outfit a boat.* [1]

The development of a cash economy in Barrow was accelerated by the Navy which hired close to 80 Eskimos in 1946 to help in the construction of their base camp. This was the beginning of the massive government influence in Barrow's economy.

While Barrow is in a relatively good geographic position for a subsistence economy, it is not so well-located for a cash economy. Alaska's economic problems resulting from a small population and long transportation routes are magnified in Barrow. Thus, the dependence on government.

The 1964 Barrow plan noted the problems and potentials of Barrow's economy:

> *This is a community without natural resources in the usual sense. Its economic resources are its northerly location (for defense), its climate (for research), and the vigor and adaptability of its population.* [2]

1. *The Eskimo of North Alaska,* p. 38.
2. *Barrow Community Development Study,* p. 9.

Table 12
AREA MAJOR INDUSTRIAL GROUPS
BARROW, ALASKA*
JULY, 1969

Group	Employers	Employees	Percent
Agriculture Forestry & Fisheries	–	–	–
Mining	7	37	6.7
Contract Construction	3	52	8.7
Manufacturing	–	–	–
Transportation, Communications, Electric, Gas & Sanitary Services	7	86	14.4
Wholesale & Retail Trade	9	49	8.2
Finance, Insurance & Real Estate	1	4	.0+
Services	7	144	24.0
Government	13	228	38.0
TOTAL	47	600	100.0

* This table also includes Wainwright, which accounted for about two employers and less than 10 employees.

Source: Alaska State Department of Labor, Manpower Survey – Smaller Communities Program, July, 1969.

Actually, Barrow's location and climate offer potential beyond defense and research. Tourism, for example, is already a big industry, at least for Wien Consolidated Airlines. Petroleum has great short-range potential and ample long-range potential, especially if the Naval Petroleum Reserve is ever opened to private leasing. A favorable settlement of the Native Land Claims would also provide a major stimulus to Barrow's economic activity. But for the present, government activities at the federal level are the major economic force in Barrow:

> *The 'basic industries' of the Barrow labor market area are, in order of importance: (1) defense installations and contractors (DEWline, etc.) and (2) petroleum exploration.*[1]

The heavy reliance on governmental activity has left Barrow with a boom and bust economy. Outside agencies have followed a policy of building and remodeling when funds become available, with little concern about the impact on the local labor market. If local labor isn't available or isn't trained, then outside labor is imported and Barrow residents lose both money and potential experience. (See the section on agency coordination starting on page 149.)

The 1964 Barrow plan noted that twice in the past two decades there had been a boom in Barrow, and twice a subsequent bust. The first boom occurred during the Navy's search for oil and their base construction during the late 1940's. The second occurred with the construction of the Distant Early Warning (DEW) Line. Subsequent booms have occurred with the construction of the airport, hospital and school. Bust periods have also been frequent, especially when construction stops in the winter.

Government expenditures tend to start a vicious circle in Barrow. This problem was noted in the 1964 Barrow plan and in another publication in 1967:

> *Though initially the impetus for migration to Barrow depended on the availability of high-paying jobs, it soon became apparent that a 'feedback' mechanism was operating which further attracted population and caused it to cluster in Barrow. The presence of jobs and salaries made it possible for natives, heretofore outside the cash economy, to become consumers of goods and services. As more people in-migrated to Barrow, more stores, restaurants, etc., sprang up to satisfy the demand. 'Bright lights' thus appeared to exert a powerful influence on the direction of native migration.*
>
> *With the increase in the population the Native Public Health Service found it necessary to expand facilities as did the Bureau of Indian Affairs. A circular effect was created. The greater the population, the greater the necessity of expanding schools and hospital facilities; and the greater the population the larger became the private sector of the economy which provided material benefits and entertainment.*[2]

Without proper government agency planning, Barrow will continue to have booms and

1. *A Subregional Economic Analysis of Alaska,* p. 336.
2. Training Corporation of America, *Alaska Regional Secondary School Implementation Plan,* Falls Church, Virginia, February, 1967, p. IV–3.

busts, together with a full range of resulting social and economic problems. For example, the Navy has developed a tentative list of long-range capital improvements with an estimated total cost of $26 million. If one third of this amount will be used to cover labor costs, it could mean almost $9 million worth of employment within the next 10–15 years. Such massive expenditures could easily take up most if not all of the slack in the Barrow economy, if they are properly coordinated with the services and labor pool of Barrow.

The Navy is only one example. Other federal agencies such as BIA, PHS and the FAA will also be putting capital improvements into Barrow in the next 10 years. The state can be expected to spend larger amounts of money as it assumes wider responsibilities on the North Slope. What is really needed is an interagency capital improvements program, developed with the City of Barrow and other relevant communities and closely related to local manpower resources, retail services, housing, etc. (This program and other coordination recommendations are more fully discussed in the section on agency coordination starting on page 149.)

Oil is the dynamic growth industry on the North Slope, but at the time this plan was written there had been little impact on Barrow other than some employment. Although it is the closest Alaskan city to Prudhoe Bay, Barrow has not become a major supply, staging or administrative center for the oil industry.

The development of major industrial centers in the Arctic is not impossible. Siberia has a number of such centers in the Arctic, many of them larger than Fairbanks and Anchorage, the two major oil cities in Alaska. In Sweden and Norway, a variety of occupations, including mining, have drawn people into permanent settlements above the Arctic Circle.

In contrast, the oil companies in Alaska appear to have little inclination to build large concentrated communities integrating a full range of social, cultural and economic activities for a permanent population, either in Barrow or elsewhere.

One oil official had these comments about urbanization in Arctic Alaska:

> *Top management and technical personnel who have freedom of choice tend to remain for only a limited assignment, because the Arctic is not really an attractive way of life for most people.*
>
> *. . . it is more efficient and more acceptable to build only the specialized facilities needed in the North and to keep the number of people and period of assignment to the minimum, relying instead on a rotation of personnel from a back base, such as Fairbanks or Anchorage, or Barrow in the case of natives from that area.* [1]

Even if Barrow is nothing more than a "back base" employment reservoir to the oil companies and pipeline contractors, it would be in the companies' own self-interest to improve such things as housing, sanitation, communication and vocational training facilities in the city. This would result in a higher quality, better motivated labor force.

1. Joseph H. Fitzgerald, "Community Development in Harmony with the Environment," a paper presented before the Arctic Institute of North America, Washington, D.C., February, 1970, p. 5.

If and when petroleum exploration and development shifts to the 23-million-acre Naval Petroleum Reserve Number 4 which surrounds Barrow, prior investment in the community would pay handsome dividends to the industry. Housing, facilities and a trained labor force would be available in an existing settlement, instead of hundreds or thousands of miles away.

Barrow and Prudhoe Bay are neighbors on Alaska's vast North Slope. They are part of a single economic and social region. But communication and interaction within this region seem inadequate at present.

Despite the fact that Barrow is about 25 minutes from Prudhoe Bay via 737 jet, petroleum employment seems to be something that draws men out of the community for extended periods of time, both for training and actual work. Barrow has had direct scheduled plane connections to Prudhoe Bay only since February, 1970. Before that, many men had to pass through Fairbanks to and from their employment. Others still have to go off alone to places like Anchorage for training.

The absence of great numbers of men, especially married men, from a small community like Barrow for weeks or months at a time can have serious social side effects. Loneliness can result in drinking and/or depression. Further study of this problem is needed.

More training and recruiting should be accomplished in Barrow, if possible. This would help the local economy without ripping apart the cultural and social fabric of the community.

Tourism

Tourism is substantial in Barrow, especially during the summer months when an average of 30 passengers a day arrive at the Barrow airport. This compares to an average of 10 passengers per day during the winter. Most of the increase is due to tourists who stay for one or two days. In 1969 a total of 1,643 tourists visited Barrow, according to Wien Consolidated Airlines, the only scheduled carrier now serving the community.[1] During the winter of 1969–70, Wien started a program of two-day off-season tours at reduced rates. The success of this program remains to be seen.

Alaska Airlines has a pending route application to serve Barrow. This might further enrich Barrow as a tourist attraction.

While tourists certainly help Wien maintain a rather high quality of air service to a place as small and remote as Barrow, once again it is the government agencies which really dominate air travel statistics. More than half of the airline passenger traffic to and from Barrow is paid for directly by government travel request.[2]

Hotel facilities for Barrow visitors are definitely substandard, just like housing facilities are for the permanent residents. The 10-room hotel in Barrow is old, has no flush toilets or bathing facilities and the rooms are extremely small. There is another hotel out in Browerville, but it is only open during the

1. Estimates from the Wien Airlines assistant station manager in Barrow and the Wien statistics office in Anchorage.
2. *A Subregional Economic Analysis of Alaska,* p. 344.

summer. Browerville is a poor location for a hotel because it is so isolated from downtown Barrow.

At the time this plan was written, the BIA had given the Barrow Co-op $5,000 for a feasibility and location study for a new hotel. Wien is also interested in such a facility.

One report summarizes the tourist potential of the region in socio-economic terms:

> *The number of tourists visiting the region annually is now approaching the number of residents. Most visitors spend one night or less in the region, and the bulk of their spending is for transportation in and out rather than for local goods or services. The number of visitors and their average duration of stay may be expected to increase, however, as tourist facilities are provided, such as Alaska Airlines' new 45-unit hotel at Nome. One aspect must be kept in mind in projecting future levels of tourism: The region's attractions to tourists are its reminders of the traditional subsistence activities and way of life of the Eskimos and its unique wildlife resources. If development results in the disappearance of these, the region will have little special for the average traveler but its harsh weather.* [1]

While some concern about satisfying tourists is good, there should also be concern about the effect of the tourists on the local people. Already there are indications that Barrow is becoming overburdened with tourists, especially in the summer. There have been instances of children begging for money, throwing rocks at the tour bus and charging to have their pictures taken by tourists.

It is doubtful whether there is any real communication between the tourists and the Barrow Natives, despite travel brochures which invite the tourist to become an "Arctic explorer" and "visit the friendly folks of the far north."

One travel brochure states:

> *Point Barrow* (incorrect name) *is the capital of Eskimoland, and the farthest north community on our continent.*
> *. . . Eskimos, probably one of the world's most likeable people, will show you how they live and some enjoy posing for pictures.*

Lured by such flowery language, the average tourist arriving in Barrow is probably surprised that the entire town does not come out to meet him. While on a one or two-day tour of Barrow, usually with white tour guides, the tourists usually receive an initial impression of squalor and disorganization. Most fail to appreciate the physical and cultural achievements of the Eskimos in adapting to the harsh and demanding environment.

While the Naval Arctic Research Laboratory and Point Barrow itself are natural tourist attractions, there has been little done to formally integrate them into a Barrow tour. One laboratory spokesman said that the primary function of the installation was research and that tourists could hinder this

1. Ibid., p. 341.

activity. He said that taxicabs with tourists from Barrow might ultimately have to be stopped at the laboratory boundary.

Tourism is a major Alaskan growth industry. For projections of future growth see table 13. But if it is going to continue growing in Barrow, proper planning and investment by the tour organizers will be needed. It is impossible to further infringe on free local hospitality and strained public facilities. Those firms which make money on tourism should spend money in the town to develop tourist attractions. Local people should be involved as much as possible and they should be well-paid for their services. The city should spend its money on the needs of the permanent residents.

Public agencies could work with the tour operators on multiple use facilities, for example a building which would serve as a tourist hotel in the summer and a vocational training facility the rest of the year. Such a facility could be used to train Barrow Natives in hotel and restaurant management and operation.

The Naval Arctic Research Laboratory should analyze its responsibilities as a tax-supported institution to taxpayers who visit Barrow, whatever their purpose. The research mission should be weighed against public information and public relations missions.

As a positive step, the lab could work with the airlines to set up a tourist area, possibly near Point Barrow, the northernmost point of land in the United States. This area could include old sod huts recently contructed for a Walt Disney film, along with whale bone carcasses, live laboratory animals, boats and traditional Arctic clothing and hunting equipment. Native guides could be paid to man the exhibit area. Some of the scientists at the lab might be paid to speak about their research projects.

Table 13
TOURISM PROJECTIONS
STATE OF ALASKA
1967 – 2000

	Number of Tourists
1967 (Actual)	86,700
1975	185,500
1980	233,700
2000	600,600

Source: State of Alaska, Department of Natural Resources, *Alaska Outdoor Recreation Plan*, Juneau, Alaska, February, 1970.

The construction of a road to the Will Rogers – Wiley Post Monument some 10 miles south of the city would also encourage tourism. Natives should be hired to take longer term tourists out on summer camping and wildlife photography field trips. Every possible effort should be made to channel more tourist money into the local economy. Perhaps then the permanent citizens will be more hospitable toward the increasing number of tourists coming to Barrow.

Employment and Income

In 1968 the Barrow labor area showed an average employment of 777 for the year. This meant that only 27.8 percent of the total area population was employed, compared to 36.1 percent of the total state population.[1] The annual average unemployment for the same year was 10.8 percent. It varied from over 16 percent in June to about 8 percent in September.

The problem with statistics from the Barrow labor area, as defined by the State Department of Labor, is that some of the Prudhoe Bay area is also included.[2] No breakdown between Native and white employment is provided. Thus the local picture in Barrow is distorted. In 1966, two years before any major oil strike, the average employment in the Barrow labor area was 537. The annual average unemployment was higher – almost 15 percent. The range of unemployment was also wider, from over 20 percent in April to about 7 percent in September.

These figures include whites, who are almost always steadily employed. Also, Native workers generally have more dependents to take care of than their white counterparts. Native unemployment therefore has a greater impact in terms of the number of people affected per worker.

The figures in table 14 should not be taken as 100 percent correct, since employment statistics from Barrow are rather skimpy and inaccurate. However, the general observation can be made that the Point Barrow Base Camp, the Bureau of Indian Affairs and the Public Health Service account for a good majority of the total Native employment and perhaps as much as 65-75 percent of the steady Native employment. It also appears that non-Natives in the Barrow area have at least as many jobs as Natives, despite the fact that the Barrow area, which includes the city and the Point Barrow Base Camp, is over 80 percent Native.[3]

The State Department of Labor, under its Smaller Communities Program, conducted a comprehensive manpower study and skill survey in Barrow and Wainwright in July, 1969. While only 297 forms were completed, the replies showed that 223 Barrow and Wainwright residents were either unemployed or looking for a better job. According to the study, wages in the Barrow area range from $2.50 an hour for inexperienced workers to $4.60 for the more highly skilled. Some foremen make $9.50 per hour. While the Labor Department does not separate Native and non-Native statistics, one spokesman said

1. State Department of Labor workforce estimates.
2. The labor market areas correspond to the original 24 election districts as defined in the State Constitution.
3. The State Department of Labor said that about one half of the permanent civilian employed workforce in the Barrow area is made up of local Eskimos.

Table 14
MAJOR BARROW AREA EMPLOYERS
December, 1969

Employer	Total	Number of Employees			
		Native Steady	Native Seasonal	Non-Native Steady	Non-Native Seasonal
Point Barrow Base Camp					
Holmes & Narver	147	27	0	120	0
Naval Arctic Research Laboratory	117	42	30	35	10
DEW Line	20	2	0	18	0
Bureau of Indian Affairs					
School Teachers	33	1(School	0	32	0
Cooks	5	5 year)	0	0	0
Roads	12	2	10	0	0
Utilities	30	30	0	0	0
P.D. & C.*	40	11	28	1	0
Public Health Service	37	24	0	13	0
Weather Bureau	7	0	0	7	0
Post Office	5	5	0	0	0
Federal Aviation Agency	3	1	0	2	0
Oil Companies & Contractors	20	0	20	0	0
Wien Consolidated Airlines	20	10	2	4	4
Shontz's Store	19	15	0	4	0
Native Co-op Store	6	6 (Plus 100 every Sept. to unload North Star)	0	0	0
Top of the World Hotel	4	0	4	0	0
Brower's Stores	7	7	0	0	0
Brower's Hotel	2	0	2	0	0
Brower's Restaurant	3	0	3	0	0
Bank	3	2	0	1	0
Polar Bear Theater	9	8	0	1	0
Al's Cafe	5	5	0	0	0
TOTAL	554	203	99	238	14

* Plant Design and Construction

Source: Best available information from ASHA surveys, Barrow Manpower Center, State Department of Labor and various publications.

the quoted wage scales were primarily applicable to Natives.

The study uncovered a substantial skilled labor reservoir in Barrow. Over 45 percent of the workers interviewed had experience in occupations such as welding, carpentry, plumbing and heavy equipment operations, and about 20 percent had experience in automotive mechanics and heavy equipment repair. General aptitude tests given to selected available workers showed "undeveloped potential skills with high aptitudes in manual and finger dexterity," according to the study.

The labor potential of the North Slope oil development is great. According to the Stanford Research Institute, the *Oil and Gas Journal* and other observers, there will probably be 5,000 jobs available on the North Slope and another 1,500 to 2,500 jobs on the pipeline. Since even oil roughnecks can make $20,000 a year in Alaska, the importance of placing Barrow men in oil-related jobs cannot be underestimated.

It is rather discouraging to note that only about 20 Barrow residents were employed by the oil industry and oil-related contractors in December, 1969. The Barrow Manpower Center estimated that 200 men in Barrow were potential oil workers. This means that only some 10 percent of the available labor force was being tapped.

Although precise figures are not available, the oil employment situation improved in the first few months of 1970. Several company recruiters visited Barrow and additional men were hired. Hopefully this trend will continue.

One report notes the problems and potential of massive Native hires by the oil and pipeline industries:

> *Most of the jobs involved will require high levels of technical skill; this may be no absolute deterrent to employment of residents (Natives) as has been shown by the training and recruitment of indigenous workers by petroleum companies in the Middle East and by the successful development of skilled Eskimo labor by defense contractors on the North Slope and by mining companies in Canada. Although in the long run it may be cheaper for the industry to recruit from a population which is at home in an area whose conditions of life most Americans find intolerable, there is little indication that the industry will on its own take the initiative in this direction.*[1]

Cash incomes in Barrow are relatively high for a Native community, at least until the high cost of living is considered. While it is extremely hard to obtain accurate data, a general picture of the Native income situation can be obtained from table 15.

While Barrow's income figures may look high, the 1969 per capita income of $1,375 is only about one third of the statewide figure of $3,966 for 1968. It is well under half of the 1968 United States per capita income of $3,412. In fact, the Alaska per capita income in 1951 was $2,835, over twice as high as the per capita income in Barrow 18 years later. Obviously Barrow has quite a bit of economic catching up to do. The section on cost of

1. *A Subregional Economic Analysis of Alaska,* p.339.

Table 15
NATIVE INCOMES
BARROW, ALASKA
1969

Income	Number of Households Responding	Percent
$0 – $2,999	30	15.4
$3,000 – $5,999	36	18.5
$6,000 – $8,999	38	19.5
$9,000 – $11,999	51	26.2
$12,000 and up	40	20.5
TOTAL	195*	100.1

Average Household Income $8,444
Median Household Income $8,500
Approximate Per Capita Income . . . $1,375

* This represents about 70 percent of the total Native households in Barrow.

Source: ASHA Survey, December, 1969.

living (starting on page 102), further emphasizes the gap between Barrow and the rest of the state and country.

Welfare

Contrary to some general assumptions, welfare is a rather minor contributor to the Barrow economy. The average total monthly income for the employed Natives is about $200,000. In October, 1969, the total state welfare payments in Barrow were $12,126. (See table 16 .) Wainwright, which is one seventh the size of Barrow, had about one fourth as much state aid – $3,300. The BIA's general relief payments in Barrow for the entire fiscal year of 1968 were only $4,622. (See table 17 .)

There is no ready explanation available as to why the BIA's welfare expenditures are dropping while the state's are going up. The BIA funds go to Native persons who are needy and who are ineligible for welfare programs operated by the state. Up until recently, both the BIA and state welfare programs were administered from outside the community. Starting in 1970, however, the state assigned a full-time welfare worker to a new district office in Barrow. The BIA also hired and trained a local Barrow resident to administer its temporary relief program. These actions could have considerable impact on the welfare picture in Barrow.

One item of concern in Barrow's welfare statistics is the sudden jump in state payments

Table 16
STATE MONTHLY WELFARE CASELOAD AND PAYMENTS
BARROW, ALASKA
1964 – 1969

M O N T H O F O C T O B E R

	Number of Cases					Dollar Payments				
	OAA	AB	AD	AFDC	Total	OAA	AB	AD	AFDC	Total
1964	32	–	2	30	64	$2,532	$ –	$169	$3,046	$5,747
1965	32	–	4	29	65	2,474	–	380	2,966	5,820
1966	36	1	4	29	70	2,840	86	331	2,911	6,168
1967		N/A					N/A			
1968	41	1	1	38	81	3,229	86	140	4,901	8,356
1969	44	1	5	50	100	4,011	110	884	7,121	12,126

Source: State of Alaska Department of Health and Welfare, Division of Public Welfare.

Explanation of Abbreviations

OAA – Old Age Assistance
AB – Aid to the Blind
AD – Aid to the Disabled
AFDC– Aid to Families with Dependent Children

to families with dependent children. (See table 16 .) Monthly payments in this category have more than doubled since 1966. The caseload has increased by over 70 percent in the past four years, going from 29 cases in 1966 to 50 cases in 1969. This compares to a population increase of only 10–20 percent during the same period.

According to the Federal Field Committee:

> *There are many reasons for continued dependency on AFDC; however, the most obvious reason for this high number of continuous AFDC recipients appears to be the lack of services provided to those who have been receiving assistance and a lack of economic opportunity.*[1]

Late in 1969, a Work Incentive Program (WIN) was started in Barrow under the joint efforts of the State's Health, Education and Welfare, and Labor Departments. The purpose of a WIN program is to provide job education and job training to AFDC recipients who wish

1. *Alaska Natives and the Land*, p.59.

Table 17
BIA ANNUAL GENERAL RELIEF ASSISTANCE
BARROW, ALASKA
FISCAL YEARS 1963 – 1968

	Cases	Annual Total Dollar Payments
1963	N/A	$29,603
1964	N/A	14,119
1965	N/A	5,444
1966	5.3*	6,373
1967	23	6,462
1968	12	4,622

* Prior to 1967 the BIA reported caseloads on a monthly average rather than a yearly total.

Sources: *Alaska Natives and the Land* (Federal Field Committee) and various BIA reports.

to gain the knowledge and skills needed to get a good job. Six Barrow mothers were enrolled in the program at the end of 1969.

A general welfare problem in Barrow, according to the local state welfare worker, is trying to stretch the public assistance payments to cover the high cost of living. (See the next section.) While food can cost 40–50 percent more in Barrow than it does in Fairbanks, the maximum total grant does not vary between the two areas. According to the Federal Field Committee:

> *State budget schedules show, for instance, the needed monthly allowance for a mother and three children in northern Alaska to be $186 plus rent and fuel; the maximum established by state law for such a family, however, is $140. Based on a 1964 sample (representing one-third of all cases) it appears that five of six families (Native and non-Native) receive allowances below their needs.*[1]

While Barrow is generally regarded as a "wealthy" Native community, there are pockets of hard and persistent poverty. Hopefully, coordinated programs of ample welfare funding and training can begin to bring more people into Barrow's social and economic mainstream.

1. Ibid. p.59.

Food Stamps could be used to help the poor cope with Barrow's high food prices. But an ASHA survey in December, 1969 found only eight families using Food Stamps. The state welfare worker should appoint a Food Stamp agent to distribute and collect applications.

Cost of Living

> *Many things contribute to high prices and costs – arctic climate, remoteness, sparse population, small volumes, limited competition, together with high wages and transport costs. Supplies must be stocked year-round with the one or two shipments coming by water during the short summer season, or they must come by air.*
>
> *. . . Production goods are higher priced also – guns, boats, nets, petroleum products, snow machines, lumber, tools, etc. A Native family in Barrow, Fort Yukon, Gambell, may pay $2,000 for necessities that a family in Houston or Washington, D.C. can buy for $1,000.*[1]

Nothing is more indicative of the high cost of living in Barrow than the price of food. While

Table 18
COST OF SIX IDENTICAL GROCERY ITEMS
BARROW AND ANCHORAGE
DECEMBER 1969

	Barrow Native Co-op	Barrow Shontz's	Anchorage Carr's
Bacon, 1 lb.	$1.75	$1.50	$1.15
Fruit Drink 46 oz. can	.70	.85	.43
Chicken Rice Soup, 10 ½ oz. can	.30	.35	.23
Detergent, 3 lbs.	1.88	1.75	.99
Sugar, 10 lbs.	2.62	2.69	1.49
Flour, 10 lbs.	2.65	2.75	1.49
TOTAL	$9.90	$9.89	$5.78

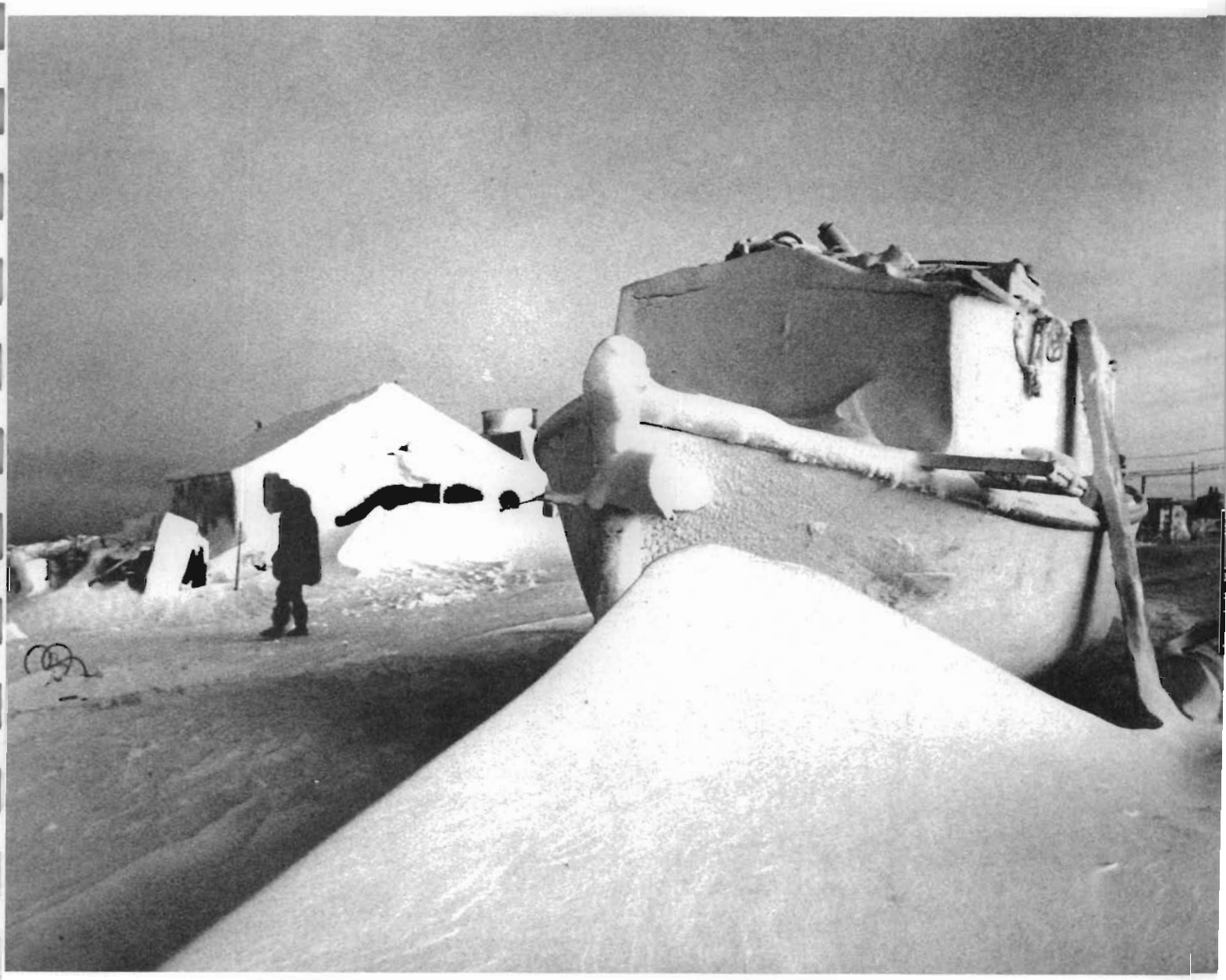
Source: ASHA Survey, December, 1969.

1. Ibid., p. 57.

hunting and fishing still are important in Barrow, over 90 percent of the Native families said that they purchase more than half of their food. [1]

A random shelf survey by an ASHA staff member in December, 1969, revealed that grocery prices in Barrow are about 71 percent higher than they are in Anchorage. (See table 18.) It is common knowledge that Anchorage food prices are not cheap. Early in 1969 they were running about 27 percent higher than Seattle. Therefore, food in Barrow often costs twice as much as it does in Seattle.

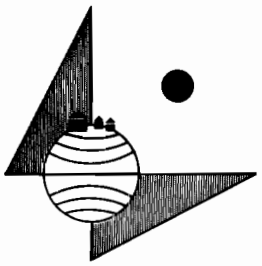
1. ASHA Survey, December, 1969.



Regional Transportation And Communication

Wien Consolidated Airlines

Boeing 737 jets are almost daily visitors to Barrow.



REGIONAL TRANSPORTATION AND COMMUNICATION

Air Transportation

Most residents of Barrow do not talk as much about the weather as they do about the last plane – or the next one. In 1969, some 7,500 passengers enplaned at the Barrow airport on scheduled commercial flights, over three times the population of the city.[1] Barrow's remote location, lack of roads to any other city and extremely short summer shipping season make first class air transportation a must if the community is to continue to survive.

Barrow is far away from the population centers of both the lower 48 and the State of Alaska. It is about 1,100 air miles from Juneau and 500 air miles from Fairbanks. This causes serious problems for both consumers and producers. Almost everything costs more because it must be carried farther and many things (such as minerals and manufactured items) cannot reasonably be carried because of transportation limitations. Petroleum may be the exception which will favor Barrow's future development but the duration of oil impact and its effect on Barrow transportation are still open to questions. For now, the uninhabited spaces around Barrow are both vast and expensive.

At present, only one scheduled air carrier (Wien Consolidated Airlines) serves Barrow. Alaska Airlines has applied for a route to Barrow, but it is uncertain whether this will be approved. There is one local air taxi service which serves hunters and sportsmen and flies to neighboring communities such as Wainwright and Point Hope. A regional center such as Barrow could use another scheduled airline and several more air taxi services.

Barrow has daily (except Sunday in winter) air service. The round-trip fare to Barrow from Anchorage is $174 and from Fairbanks it is $114. There are no special student fares available. With all the young people in Barrow, a student rate seems like a necessity.

Via F-27 propjet, the trip from Fairbanks to Barrow takes about two hours. Via a Boeing 737 jet, this time is cut to an hour and 15 minutes. Wien uses both types of equipment on its Barrow flights, although the 737 jets seem to be making more of the runs.

In February of this year Wien began flights between Prudhoe Bay (Deadhorse Airport) and Barrow. Previously, Barrow residents who were employed with the oil industry had no choice but to fly down to Fairbanks to get back up to the Prudhoe Bay area. While some contractors fly special charter flights between Barrow and Prudhoe Bay, the community will never fully participate in the state's oil boom unless it continues to have a direct scheduled air connection both to and from Prudhoe Bay.

The importance of air freight to Barrow cannot be underestimated. Some 1,074 tons of freight and 878 tons of mail arrived by air

1. Wien Consolidated Airlines' statistics.

in Barrow in 1969.[1] This was more than the 1,016 tons which arrived by water on the North Star. Air freight is the only way goods can be transported to Barrow for at least 10 or 11 months per year. As Barrow grows and consumer tastes become more and more sophisticated, the use of air freight will no doubt increase. The introduction of larger jets will mean that more and more types of goods can be transported, hopefully at reduced rates.

Present air freight rates from Anchorage to Barrow are 20½ cents per pound over 100 pounds and 27 cents a pound for shipments under 100 pounds, with a minimum charge of $6.00. From Fairbanks the rates are 13 cents per pound over 100 pounds and 17 cents a pound for shipments under 100 pounds, with a minimum charge of $6.00. All-freight flights are made from Fairbanks, but only on an unscheduled basis.

Up until recently, the rate for shipments of less than 100 pounds from Anchorage was 21 cents and from Fairbanks it was 15 cents. The minimum charges have also been raised from $4.00 to $6.00. Thus, even through larger planes are now making the run to Barrow and more freight is being shipped, the rates are still going up. Air freight rates on snowmobiles have doubled within the past two years. Unless the cost of air freight goes down, Barrow's economic growth will be hindered.

Water Transportation

Ships and barges come to Barrow only during the relatively short period during August and September when the ice pack recedes from the Alaskan coast of the Arctic Ocean and the Chukchi Sea. It is 1,843 nautical miles from Barrow to Anchorage and 1,167 nautical miles from Barrow to Dutch Harbor.

The BIA ship North Star delivers supplies from Seattle and other ports to some 60 Native communities in Alaska. In 1969 some 1,000 tons were delivered to Barrow. The North Star serves the Native cooperative store in Barrow and also carries housing kits and other building materials for the Native residents. A private shipper, B and R Tug and Barge Lines, also serves Barrow from time to time.

Since the waters off Barrow are quite shallow (about six feet deep 1,000 feet out), it is necessary for vessels to anchor a mile or more off the coast where supplies are off-loaded by lighters, adding to the ultimate delivery cost. Explosive charges are sometimes set off on the ice pack to blast channels for ships and barges. While statistics are not available for Barrow, lighterage rates at Nome and Kotzebue constitute approximately 26 percent of the total transportation cost, according to Alaska Steamship Company.

One hope for improving water transportation to Barrow lies in the possible success of icebreaking supertankers such as the Manhattan. According to the Stanford Research Institute:

> *If icebreaking supertankers start putting in at the North Slope on a regular basis, they would provide inexpensive means for the oil companies to ship supplies. Using tankers as supply carriers is nothing new. It is attractive when other*

1. Ibid.

modes are inconvenient or expensive, particularly if the oil field is close to the ocean. Since the vessel must operate to haul oil regardless of whether any supplies are to be moved, the full operating cost of the ship can be allocated to the oil. [1]

If such reasoning applies to the oil development at Prudhoe Bay, it equally applies to the community of Barrow, only about 200 miles further up the coast. The City of Barrow and the State of Alaska should take a leadership role in encouraging transportation innovations which benefit the entire North Slope and not just the activity at Prudhoe Bay.

Regional Roads and Surface Transportation

Barrow has no road connection to another city. The only road that even remotely resembles a regional road is the one running along the beach from Barrow to the Navy lab and camp some four miles away. The road is constructed of several feet of gravel laid on the tundra. The surface is of fine silt mixed with the gravel to produce a generally good road. According to spokesmen at the Arctic Research Laboratory, such roads are economically and practically the most feasible in the Arctic and are comparable to a gravel-surfaced state highway.

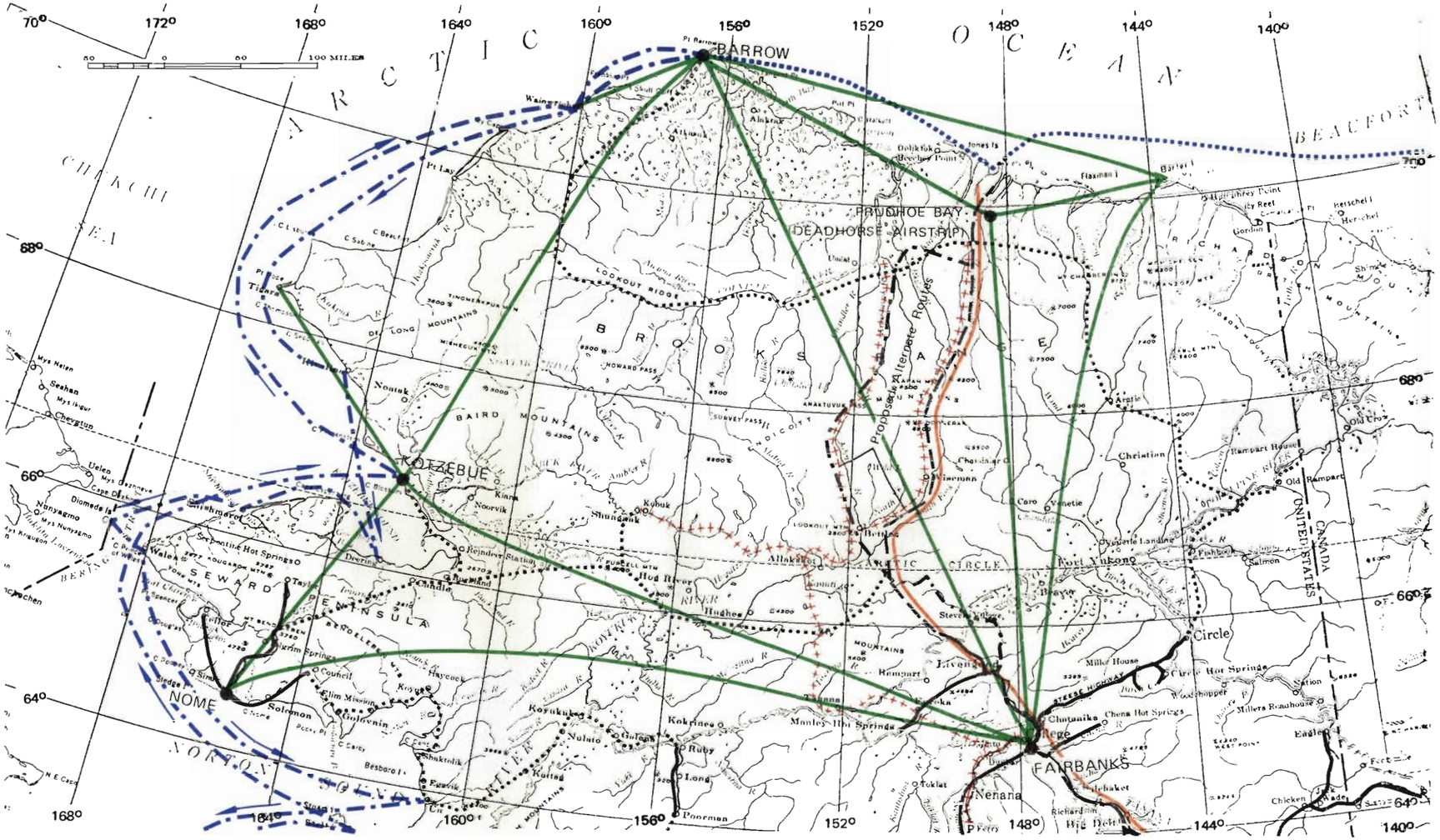
There are no roads to two major attractions around Barrow —— the Will Rogers — Wiley Post Monument, 10 miles to the southwest and Point Barrow, the northernmost point of land in the United States some 7½ miles to the northeast. The city, the Navy and the State Department of Highways should get together and work out plans for building these roads. Ultimately, the road to the monument might be extended to Wainwright some 90 miles further down the coast.

In the future, road links from the Navy lab and camp to the City of Barrow should be away from the beach so they are not subject to storm damage, flooding, erosion, etc. The present road sometimes washes out as the ice breaks up and the community is isolated from its major source of employment for several days at a time.

The Navy has been considering a more inland road connection, past the gas wells to the City of Barrow. (See the regional map on page 59.) But a definite decision on such a road will probably not come until the end of 1970 when the master plan for the lab and camp will be released and an interagency conference held in Barrow. The availability of gravel or other insulation material will be a prime factor in any new road construction. The City of Barrow Comprehensive Development Plan, being locally funded in part and more local in scope, cannot make any further analyses or recommendations on roads to the Navy lab and camp until the Navy first reveals its plans.

Given the constraints of time and funding, it is impossible for this City of Barrow plan to consider all the pros and cons of a possible road link between Barrow and Fairbanks, or Barrow and Prudhoe Bay. Although some experts, such as the Stanford Research Institute, seem opposed to permanent roads over the Arctic tundra, the State of Alaska is presently proposing to build a $120 million road from Fairbanks to Prudhoe Bay. Given the same type of oil or natural gas development in Naval Petroleum Reserve Number 4, a road link to Barrow might

1. Stanford Research Institute, "North Slope Transportation Problems" (Draft), October 15, 1969, p. 10.



REGIONAL TRANSPORTATION

ARCTIC SLOPE, NORTHWEST AND INTERIOR ALASKA

1970 – 1990

Marine Routes

- Oil Tanker - Ice Breaker, S.S. Manhattan[1]
- Supply Ship, Bureau of Indian Affairs, USMS North Star III[2]

Highway Routes

- Existing State Roads[3]
- Proposed Long-Range State Roads[3]
- Existing Winter Road (Hickel Highway)[3]
- Proposed Trans Alaska Pipeline System (TAPS) Road[4]

Pipeline Route

- Proposed TAPS Oil Pipeline[4]

Railroad Routes

- Existing Alaska Railroad Lines[5]
- Proposed Alaska Railroad Extensions[5]

Air Routes

- Existing Selected Scheduled Commercial Airlines[6]

Sources: 1 National Geographic, 3/70, 2. Bureau of Indian Affairs, 3. Alaska Department of Highway, Planning and Research Division, 4. Bureau of Land Management, 5. Alaska Railroad, 6. Wien Consolidated Airlines.

Wien Consolidated Airlines

become feasible. As this plan was going to press, the state released long-range plans to construct a road from Prudhoe Bay to Barrow. (See map on page 110.) Before spending a lot of money on a road, the state should seriously consider using the same funds to subsidize air transportation.

Snow machines are used for limited regional as well as local transportation. Barrow Natives often range out as far as 100 miles on hunting or trapping trips. Snow machines are also used to travel to Wainwright which is about 100 miles away. The trip takes 30 minutes by air and seven or eight hours by snow machine.

Telephone

Barrow is served by the General Telephone Company of Alaska. There are about 100 telephones in the community, including the outside phones at the Naval Arctic Research Laboratory. Rates for a private line are $21 per month for a business and $14 per month for a residence.

Long distance calls can be made through the Alaska Communications System which utilizes the multi-channel radio transmitting facilities at the nearby DEW Line site. Station-to-station rates from Barrow to Anchorage are $1.40 for the first three minutes and 45 cents for each additional minute. From Barrow to Fairbanks the rates are only slightly cheaper – $1.30 for the first three minutes and 40 cents for each additional minute.

Newspaper

There is no local newspaper in Barrow. This often results in a lack of communication, especially since less than one third of the homes are served by telephones. The Naval Arctic Research Laboratory puts out a newspaper or newsletter for its own employees, but neither the content nor the distribution of this paper seem to take Barrow into account. One local movie theater passes out handbills advertising its weekly offerings and the stores, restaurants and the post office are used to display various notices. A community newspaper (possibly with a bilingual content) would greatly assist in general communication and also give the community a sense of identity.

According to an ASHA survey, about 64 percent of the Barrow households read the Fairbanks Daily News Miner and about 55 percent read the Tundra Times. One local merchant reported that sales of the Fairbanks paper go up when news or pictures from Barrow appear. This would further indicate the need for a local newspaper. If one of the governmental agencies would make typing and reproduction equipment available on a "no-strings" basis, it is possible that local people might be found to organize and publish a newspaper. This could be a good project for the young people to consider.

Radio and Television

Because of Barrow's remote location and long periods of frozen darkness, there is a great need and demand for the best that modern media have to offer. Unfortunately, the existing radio and television offerings in the community fall far below the need.

The Armed Forces Radio Network provides the only full-time operation that can be received by standard band radio. Cable television transmissions began in 1969 with taped network shows being presented four to five hours per day. The cost of a cable hookup is high – $80 for installation and $20 per month thereafter. But an ASHA survey in December, 1969, showed that 56 percent of

the Native homes had television sets, compared with 55 percent which took the Tundra Times newspaper. Over 93 percent of the Native homes had a radio.

While the existing television service in Barrow is expensive and unscheduled, there is such a local interest in this medium that it was used by candidates during the city's 1969 municipal election campaign.

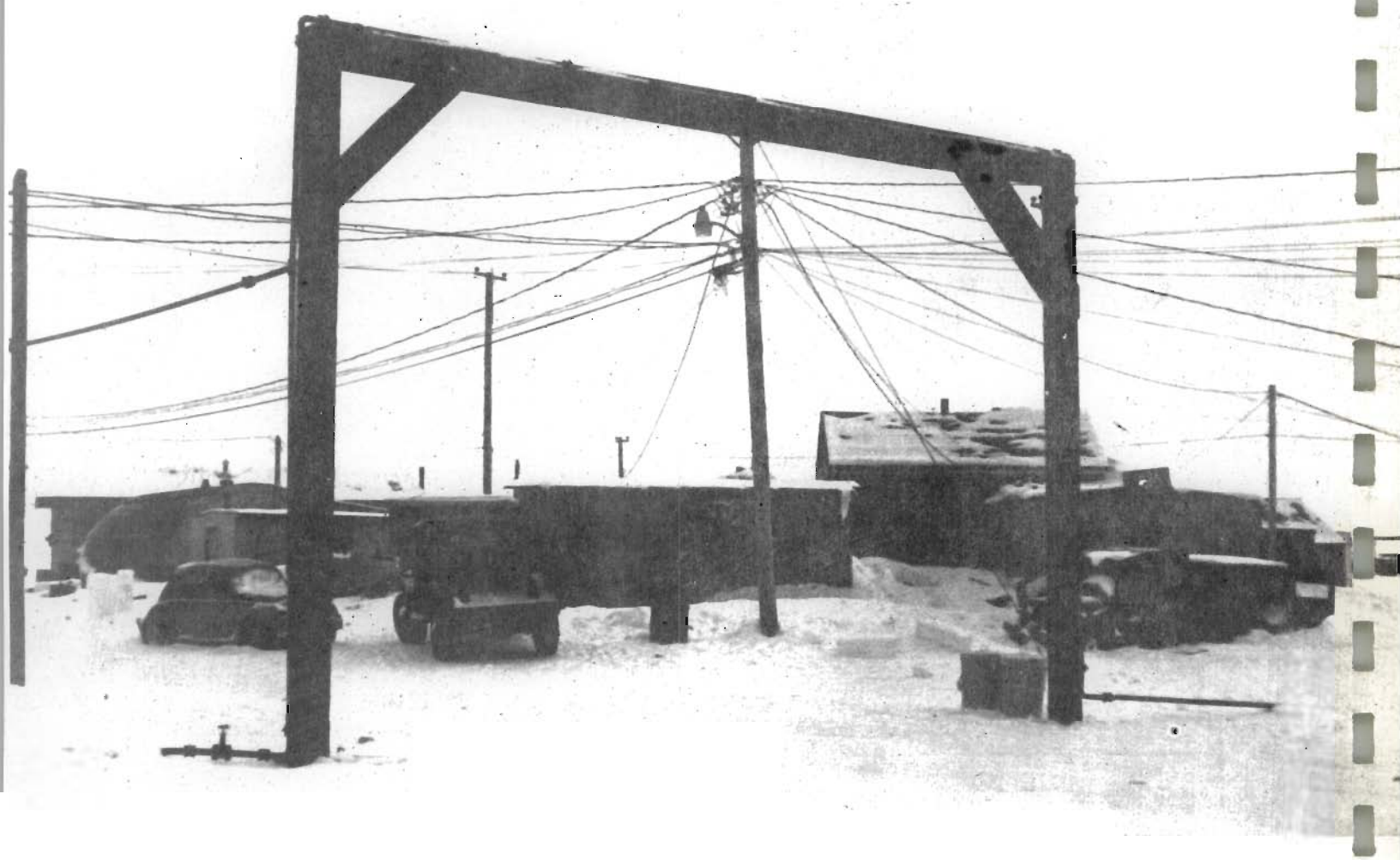
Barrow should be among the first communities included in any state satellite television system. The oil companies should consider a financial contribution to some sort of joint radio and television system to serve Prudhoe Bay, Barrow and other North Slope communities. The BIA should seriously consider educational television as an alternative and/or supplement to outside boarding schools.

The Federal Field Committee has noted the extent of the communications gap in rural Alaska:

> *In the longer view, the inability to extend normal communications into many of the villages deprives them of the opportunity to receive educational programming in their home environment under a program of the University of Alaska. The alternative of bringing Native students out of the villages for education is extremely disruptive to their living patterns and reaches only a fragment of the people. Constant, daily exposure to information, ideas and the English language can be of inestimatable value to the development of Alaska Natives. The need for communications to the remote areas is urgent.*[1]

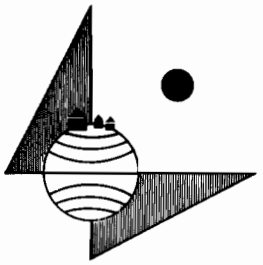
1. Communications Working Group of the Federal Field Committee for Development Planning in Alaska, "The Need for a Long–Range Communications Development Plan in Alaska," submitted to the Office of Telecommunications of the U.S. Department of Commerce, November 24, 1969, p. 2.

Barrow As A City



Alaska State Housing Authority

The famous "Barrow Arch," a structure used to carry the exposed natural gas lines over the streets.



BARROW AS A CITY

Local Government and Administration

Because of Barrow's growth and its remote location, it would seem logical for the city and the region to have a maximum of local government. Unfortunately, the reverse is true. Barrow is one of the largest fourth class cities in the state. Many other Alaskan communities less than half the size of Barrow are first or second class cities.

The major difference between a fourth class city and a first class city is that a fourth class city cannot use the traditional municipal revenue source – the property tax. Instead, it must rely on a sales tax. However, a fourth class city doesn't have the responsibility for schools.

It is only through outside federal assistance (Public Health Service, Bureau of Indian Affairs, etc.) that the citizens of Barrow are able to enjoy relatively adequate health, school and road maintenance services. But these federal agencies, no matter how good their intentions, cannot allow maximum local participation in their administrative, personnel and construction decisions.

In other areas of Alaska, the borough form of government is often used to help growing communities provide services such as education and planning. But Barrow does not lie within the boundaries of an organized borough and so far the state has not assumed any real responsibilities for education or planning in the portion of the unorganized borough which surrounds the community.

Under Alaska law a fourth class city may assume the following responsibilities:

– Water, electricity, sewerage, fire protection .

– Construction, maintenance, operation of community buildings, roads, trails .

– Liquor control, dog control .

– Prohibition of drunkenness, gambling, houses of ill-fame, disorderly conduct.

– Setting of curfew, action necessary to protect and preserve the life, the health, the safety and the well-being of the citizens .

– Maintenance of jail and prescription of limited fines and sentences .

– Establishment and regulations of public utility rates, granting of franchises .

– Governance of motor vehicles, fire works .

– Making of and performance of contracts .

– Zoning and control of land use .

Barrow has made a worthwhile effort to govern itself as a fourth class city, but the rapid growth and increasing citizen needs have made this all but impossible. The city provides many of the services previously listed, although the BIA is still mainly responsible for the roads and the utilities

which serve the various agencies. Electricity and gas are handled by Barrow Utilities Incorporated, a co-op financed and administered in part by the BIA.

The city was incorporated in 1958 and has a seven-man council. Six of the councilmen are elected for two-year terms. These terms are staggered so that three two-year councilmen are elected each year. The seventh councilman is elected to a one-year term. The council elects a president from among its members. Councilmen are paid $15 per meeting and the council has a regular meeting every Monday. In addition, special meetings are often held with visitors, etc.

One pressing need in Barrow is in the area of housing and construction codes. These are especially important in Barrow's extreme environment where heating units are put to their maximum use and fires are a constant threat. Barrow should adopt the following standard codes with local modifications:

Building

Plumbing (for the future)

Electrical

Housing

Fire Prevention

The city will need technical and financial assistance to enforce such codes.

Barrow's paid administrative staff is limited to a part-time city clerk, a police chief and several policemen and jail guards. For part of 1969 the Alaska State Trooper in Barrow acted as the police chief. A full-time paid city manager is definitely needed in Barrow. It would probably cost at least $18,000–$20,000 to obtain the services of an experienced person for this position, but it would be money well spent.

A full-time city manager could help Barrow get its files and financial records in order. He could supervise public works activities and even the police if this was desired. He could promptly send and answer correspondence and implement council decisions more quickly and effectively. He could meet with visiting "experts" and agency representatives who seem to be coming to Barrow in ever-increasing numbers. He could work closely with the state and federal government to make sure that Barrow receives its fair share of programs, grants and loans.

If a city manager is hired and the city clerk is elevated to a full-time position, Barrow will have taken the first step toward effectively governing itself. But in the near future Barrow should seriously consider contacting the State Local Affairs Agency about the possibility of becoming a first class city and/or part of an organized borough.

One of the initial goals of a borough on the North Slope would be to tax the oil development around Prudhoe Bay. But such a borough could have many longer lasting benefits. It would set up a regional government which could not only effectively coordinate different levels of government, but also plan and direct development on the fragile North Slope terrain in the best interests of the local residents.

A borough form of government on the North Slope would provide opportunities for local leadership to emerge. Assuming an early settlement of the land claims issue, there will be a ready reserve of Native leaders available for local government positions. A borough government might also supply constructive

positions for many of the younger Natives who are eager to help their people.

The very existence of a borough would provide an incentive for upgrading local public administration skills. The incentive to achieve more sophisticated local governments will exist only if there are powers to be assumed and decisions to be made. Commissions, committees, boards and councils which are purely advisory will do little to improve the situation. Paternalism will never result in self-sufficiency, only continued dependency and resentment on the part of Barrow residents.

One of the main questions related to the feasibility of a North Slope borough is whether an adequate tax base would be available. Research is needed on the area from Barter Island to Point Hope to determine what properties may be taxable. Qualified assessors should be employed by the state, with some assistance from the local residents, to analyze development on the North Slope, especially around the Prudhoe Bay oil fields. The findings from such a study would have a major impact on ultimate state acceptance or rejection of a borough.

A comprehensive plan for Alaska's North Slope should also be accomplished as soon as possible. Such a plan could provide much information to assist future governmental decisions.

City Revenues

Like most of the other fourth class cities in the state, Barrow has financial problems. The city cannot obtain revenue through the traditional municipal revenue source – the property tax. Instead it must rely on a sales tax of 3 percent (raised from 2 percent in February, 1970). In 1969 the city collected an estimated $37,000 from the 2 percent sales tax, plus about $10,000 in fines and state tax refunds for total revenues of $47,000.

According to the city treasurer the total sales tax collections should have been over $55,000. Delinquencies account for the difference. Looking ahead to 1970, the higher 3 percent tax rate should just about make up for the delinquencies. A total of about $55,000 can be expected in 1970 sales tax revenues, plus an additional amount (perhaps 5 percent) which may result from natural growth of the business sector.

Another major source of annual income is from various state shared taxes. During the last fiscal year Barrow received some $17,000 in state shared revenues. Tentative allocations for the next fiscal year (1970–71) come to $45,000. Under the proposed revenue sharing formula, Barrow should be reimbursed for fire and police protection, land use planning and parks and recreation.

At the time this report was written, it was uncertain exactly how much state shared revenue Barrow could expect. It could turn out that Barrow would be eligible for $45,000, but the state might pay only 75 cents on the dollar. In this case the city would receive only $34,000. State shared revenues can be used for any valid municipal expenditures, so Barrow's city government should have quite a bit of flexibility in their use.

It appears that the city's total revenues for the calendar year 1970 will run somewhere between $75,000 and $100,000. This is a rather meager treasury for a growing Arctic community of 2,000 people, but a definite improvement over previous budgets. The City of Nome, which is only slightly larger than Barrow, had almost $400,000 in revenues in

1969, primarily because as a first class city it can levy a property tax. Even Bethel, which is a fourth class city about the same size as Barrow, had revenues of $273,000 in 1968. Although Nome operates its own school system, it appropriated only $59,000 for that purpose in 1968. Thus it was still ahead of Barrow in net municipal revenues.

Barrow will have to match or exceed places like Bethel and Nome in local municipal revenues if it is ever going to become a self-sufficient city. The availability of various federal and state loans and grants often depends on a local share. A municipality that verges on bankruptcy often is not eligible for many programs because it cannot put up a local share. Nome, for example, is already in line for a multi-million-dollar urban renewal project and a substantial loan and grant from the Economic Development Administration for a vocational training center.

Although they are both fourth class cities, Bethel has more municipal revenues than Barrow because it has a community liquor store. Liquor revenues enhance the City of Bethel treasury by over $100,000 per year. By 1975 the liquor revenues are expected to be $250,000 per year.

Barrow voted wet late in 1969 and early in 1970 the city formed a nonprofit corporation to apply for a liquor store license. As of June 1, 1970 this application had not yet been approved by the state. Private businessmen have also applied for Barrow liquor licenses. It is uncertain at this point whether anyone will get a license or whether the community may wind up voting dry to prevent private liquor outlets from springing up in Barrow. If the community doesn't obtain a liquor license, it will lose a valuable opportunity to increase its municipal revenues.

It is extremely difficult to thoroughly analyze Barrow's finances. The city has never had an audit and financial records are incomplete and filed in a somewhat haphazard manner. The increase in the sales tax rate and state shared revenues and the possibility of liquor revenues make hard and fast predictions on total city revenues almost impossible at this time.

With at least some increase in municipal revenues it becomes all the more important to upgrade the city's financial administration. An audit would be a good first step. The hiring of a city manager with accounting expertise or a part-time city treasurer should also be given early consideration.

City Expenditures

Because the Bureau of Indian Affairs and Public Health Service provide essential school, health and road maintenance services, the city has been able to barely survive on its rather small revenues. The major portion of city money is used to finance police and jail guards. Barrow paid close to $35,000 for police services in 1969 and is considering salary raises in 1970. The only other paid employee was a part-time city clerk at an annual cost of about $3,500. This position is expected to be made full-time in 1970.

Other major municipal expenditures in 1969 included the following:

$4,200 – gas and electric bills for heating, street lights, etc.

$ 700 – taxi service (primarily for the police who have no vehicles of their own)

$5,500 – Councilmen's compensation at $15 per meeting

$ 700 – Attorney's fees (primarily for collecting delinquent sales taxes)

The city apparently still owes Barrow Utilities Incorporated most if not all of its 1969 utilities bill. Aside from this bill, total reported expenditures for 1969 came to $45,400. A more detailed accounting would be necessary to come up with exact figures, but a general estimate would be that in 1969 Barrow had expenditures of some $50,000, an amount about equal to the city revenues.

Additional expenditures in 1970 will include at least $5,000 for a subsidy to the honey bucket and solid waste pickup service, several thousand dollars for police and fire equipment (guns, mace, communications equipment, coats, hats, etc.) and $2,750 to the Alaska State Housing Authority as the city's share of the cost of the comprehensive plan.

Hopefully, the increased sales tax, possible liquor sales and increased state shared revenues should enable the city to hire more full-time employees, including a full-time city manager, better equip its police with vehicles and maintain adequate sewage and solid waste collection service. The BIA also wants to turn over its road maintenance program to the city in the near future. This will involve considerable local expenditures, although the state reimburses communities $1,000 per mile per year for local road maintenance.

Police and Fire Protection

Barrow's municipal police force consists of a chief, two patrolmen and several part-time jail guards. All are Natives. A white Alaska State Trooper resides in Barrow and has jurisdiction over the entire North Slope. The trooper has acted as the unofficial chief of police during periods when the Native position was vacant. He works informally with the local police in training and law enforcement coordination.

The Barrow police are seriously deficient in office space and jail facilities. (See the section on the city hall and municipal buildings, starting on page 127 .) There are no local police vehicles and there is no communications equipment. Policemen often have to use taxicabs or their own snow machines to transport prisoners to the jail.

Serious crime is rarely a problem in Barrow, but juvenile and/or alcohol-related offenses are a cause for concern. According to the trooper, there were 150–200 arrests in the 17 months prior to December, 1969. But only two of these involved weapons and, according to the trooper, all but one of the arrests were related to the use of alcohol. There have been no murders or armed robberies during the same 17-month period. The trooper said that lawlessness is most prevalent during the long periods of winter darkness.

Dog control is also an important part of local police work, even though snow machines have totally replaced dog sleds as a means of transportation. The city requires that all dogs be kept tied or chained, but the general means of enforcement seems to be the occasional shooting of strays by the police. The city council should consider setting up a central dog pound if the problem continues.

One or two additional troopers might be stationed in Barrow by the summer of 1970, according to the State Department of Public Safety. The Prudhoe Bay oil activity is presenting additional law enforcement demands. The question is whether it would be more efficient to station all North Slope troopers in Barrow headquarters or spread them out in additional stations closer to Prudhoe Bay.

Without additional municipal revenues, the local police in Barrow will continue to be dependent on the trooper. The City of Barrow expects to upgrade its police force through liquor revenues, if and when the city obtains liquor licenses. The local police should work with the hospital and the state to provide treatment for those with alcohol problems, instead of making them semipermanent jail residents. If and when liquor licenses are granted in the community, a portion of the revenues should be used to provide medical and social services for problem drinkers.

Fire protection is substandard in Barrow. There is a volunteer fire department and the only fire vehicle is an old World War II tracked vehicle which is extremely slow and has a defective pump. The only real fire fighting capability is four miles away at the Navy base camp. While the camp equipment will come to the city on call when the road is passable, it often arrives too late. There were some seven fires in the city in the past year, all of which were totally destructive.

The local Lions Club is presently trying to raise $29,000 to buy the city a fire truck. But the real solution would be for all the state and federal agencies in the city to contract with the city for fire protection. This would provide funds to help upgrade the level of fire protection in Barrow.

Schools

The school system in Barrow is financed by the Bureau of Indian Affairs and administered by the Bureau and an advisory school board elected by the community. Students can go to school in Barrow only through grade 9. Then they must go out to some boarding school to complete their education. Some students have to go as far away as Oregon or Oklahoma to finish high school. (The social aspects of education in Barrow, including the pros and cons of a local high school, are discussed in a separate section starting on page 45.)

In October, 1969 there were 680 Native students in the BIA school system in Barrow. In addition there were 32 non-Native students. Sixty-eight preschool students were enrolled in the local Headstart Program. The grade breakdown of the Native students is listed in table 19.

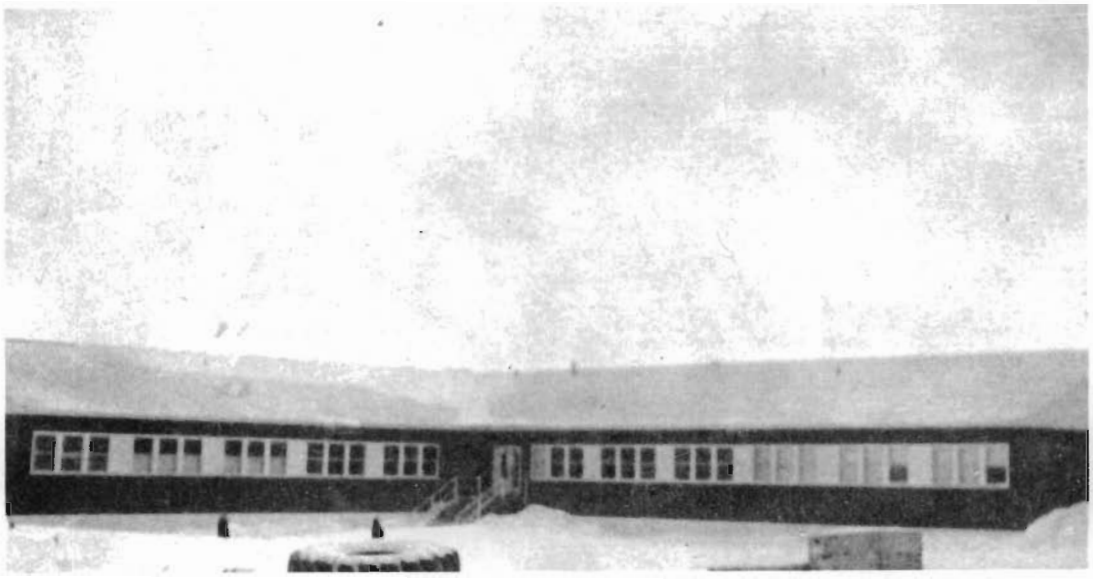
In addition to the local enrollment, there were 120 students away in grades 10–12. The BIA has projected a 1976 K–12 Native enrollment of 1,062 students, assuming that a high school will be available in Barrow by that time. This would be a gain of 28 percent in seven years. In addition, if a regional high school is built, another 30–50 students might come in from Point Hope, Wainwright, Anaktuvuk Pass and Barter Island.

There are 30 teachers and three supervisors hired by the BIA for Barrow, but only one teacher is a Native. In 1970 the advisory school board was allowed to select a new principal for the first time. The teacher–pupil ratio in Barrow is about 1 to 24, which is considered good by teachers.

BIA classrooms are housed in three separate buildings, plus some portable facilities. The square feet per building are listed below:

Junior High School	35,869
Elementary	9,450
Primary	15,868
Portable	4,330
Total:	65,517

There is about 92 square feet of school space per student in Barrow. In addition, there is a



Alaska State Housing Authority

Alaska State Housing Authority

BIA primary school (above) and multipurpose building (below).

Table 19
NATIVE SCHOOL ENROLLMENT
BARROW, ALASKA
OCTOBER, 1969

Grade	Pupils
Kindergarten	84
Beginners*	52
1	96
2	56
3	56
4	71
5	68
6	61
7	55
8	40
9	41
Total:	680
Non-Native students	32
Total BIA enrollment:	712

* Beginners are students who need additional training before they start in first grade.

Local Headstart Program enrollment: 68 (as of February, 1970)

Source: Bureau of Indian Affairs school principal in Barrow and local Headstart teachers.

11,400 square-foot multipurpose building which is used for basketball and other sports and recreational purposes.

The elementary school is located about 1,000 feet from the main complex. It is in downtown Barrow, across from the bank and Shontz's store. This building is about 20 years old, but still in relatively good condition according to the local BIA principal. One of the main drawbacks of the old building, which includes several teachers' apartments, is that it is not hooked on to the BIA's water and sewer system. Another longer range problem is its location adjacent to Barrow's prime commercial intersection. Ultimately, the land should be used for commercial and possibly some office and medium density residential facilities.

The junior high, primary and multipurpose buildings are all new or relatively new. They are clustered together in the BIA complex. The junior high building has an industrial arts shop, a home economics laboratory, a science laboratory and a modern kitchen for the

school lunch program. All of the newer buildings are on the BIA's water and sewer lines. Children reportedly get one shower a week at the BIA school.

One major problem is that there are no sprinkler systems or fire hydrants to serve the school buildings. The BIA should work with the community to upgrade the city's fire fighting ability. It could then contract with the city to provide fire protection. A sprinkler system, similar to the one in the hospital, should be installed as soon as possible to avoid a potential tragedy.

Barrow will need much more school space in the future, both for the increasing population and a local high school. In 1969 about one out of every seven students in Barrow was in the first grade. Assuming that a high school is built, there will be an increase in local enrollment of about 350 students by 1976. At 100 square feet per student, this would mean at least 35,000 square feet of additional classroom space.

Details on land for the proposed new high school can be found in the land use section, starting on page 65 . At the time this plan was written, there was some question who would actually build the high school – the state or the BIA. The president of the Barrow Advisory School Board said recently that the board has tried to get the BIA to establish a high school in Barrow, but that the BIA said it has no money for the project.

The State of Alaska has expressed the goal of incorporating the BIA schools into the state school system within five years. This has been discussed in Barrow, but no definite decision has yet been made. It is possible that a favorable settlement of the Native Land Claims might prompt the community to finance and run its own school system, either as a first class city or as part of a North Slope borough. The city seems willing to terminate its relationship with the BIA (at least with regard to the schools) if a state or local school system of equal or better quality becomes available.

No matter who constructs and remodels the school buildings in Barrow, one idea should remain primary in their thinking. This is the concept presented by a BIA teacher at the Interagency Conference in Barrow in February, 1970. He said that any local school has to be "at least superior" because the children miss a lot of experiences by living in the remote Arctic community.

One of Barrow's major problems in the next 10 years will be the population bulge of youth growing up. In 1969 over half of Barrow's Native population was under 15 years old. Education will be one of the major factors in determining whether Barrow's young people will be future community assets or future community problems.

Churches

There are three churches in Barrow – Presbyterian, Roman Catholic and Assembly of God. The Roman Catholic Church is in a small quonset hut and seems to be attended primarily by non-Natives. The other two churches are in large, impressive buildings and have primarily Native congregations. They also have services in both the English and Native languages.

The particular denominations in Barrow are not all there by chance. Around the turn of the century, North Alaska was divided into several religious regions. The Barrow–Wainwright area was assigned to the Presbyterians, while the Point Hope–Point Lay region went to the Episcopalians. Other churches came in at a later date.

Alaska State Housing Authority

Economic Development Administration

The Assembly of God Church (above) and the Catholic Church (below).

According to one author, Barrow's two Native churches offer quite different services:

> *Services differ according to the church in question. The formal service of the Presbyterian Church de-emphasizes individual participation, whereas the evangelical churches encourage personal religious expression. A typical Assembly of God service begins with the singing of revival hymns to the accompaniment of an organ or guitar. Individual and group prayers and the offering of personal 'testimonials' follow. As many as 75 percent of the congregation may stand at one time to speak in an emotion-laden voice. Each relates the story of his 'salvation', enumerating in detail such past sins as drinking, dancing, playing cards, and smoking (women tend to be less specific than men in this regard) – and why he or she will refrain from committing such actions in the future.*[1]

City Hall and Municipal Buildings

Barrow does not have a city hall as such. The city council meets in the Youth Center, a relatively new building which is supposed to be for the young people, but which contains the offices of the city clerk, the VISTA lawyer and the BIA welfare worker. The Youth Center is also used for adult bingo games and the adult Work Incentive Program (WIN) training classes. Part of it is used for the community's Headstart Program. The Youth Center was built in 1967 as the city's Alaska Centennial project. It is maintained by a Youth Center Committee, mainly on bingo receipts.

The city also has an old firehall which is in rather poor condition. This building houses the police, fire fighting equipment, magistrate's court and jail. The six jail cells are small and poorly ventilated without running water or washing facilities. According to one report:

> *The state trooper . . . is so appalled by the facility (the jail) that he usually permits the prisoners to roam about the entranceway and adjoining courtroom.*[2]

Barrow obviously needs another community building. The Youth Center should be used primarily by the people under 20, who make up almost 60 percent of Barrow's population. The state has a capital request for $219,000 to construct a combined trooper's office, cells, duplex apartments and possibly courtroom facilities. At the time this plan was written, a state building was reported to be on its way to Barrow via the North Star. Details on the size of this building and its proposed location were not available to the community or to ASHA.

The possibility of a joint city-state office building should be considered if there is still time. Multiple uses might be made of the same space, perhaps with a combined courtroom and city council chamber. Both the Youth Center and the firehall are well located near the hotel and downtown Barrow. The new state-city facility should be built in the same area, possibly on the site of the firehall which could then be torn down.

Hospital

Barrow has perhaps one of the finest hospitals for a community of its size in the entire state.

1. *The Eskimo of North Alaska,* pp. 60–61.
2. C. Robert Zelnick, "Justice in the Bush: Part 5, A Growing Delinquency Rate," *Anchorage Daily News,* December 20, 1968.

The existing Public Health Service Hospital was built in 1964 of fire resistant wood frame construction on wood pilings sunk into the permafrost. It has 14 beds, two physicians and a dentist. (See the section starting on page 50 for details on Barrow's health problems.)

The Barrow facility is the northernmost hospital in North America. Besides Barrow, the institution also serves the other North Slope communities such as Wainwright and Barter Island. Its service area is over 65,000 square miles. Radio schedules are maintained five days a week during which physicians provide diagnosis and treatment for patients in remote locations. Field clinics are also provided on a regular schedule.

Quarters for the hospital professional staff are linked to the main building by heated utilidors, which also serve as enclosed walkways. The hospital building has a sprinkler system for fire protection. This system uses water from the nearby lagoon.

All air used in the hospital is filtered several times before it is circulated. There are no windows that open in the building, since the inside air is maintained at a slightly higher pressure than the outside air. The building is therefore easier to keep clean and it requires paint less frequently.

Airport

Barrow's Will Rogers – Wiley Post Memorial Airport has the only asphalt-paved runway north of the Arctic Circle on the North American continent. The airport is a state-owned facility. The runway which was paved in 1968 is 6,500 feet long and 150 feet wide. Planes as large as the Lockheed C-130's and the Boeing 737 jets regularly visit the airport.

The airport is built on one of the finest building sites in Barrow, according to Dr. Max Brewer, the head of the Naval Arctic Research Laboratory. It is on a natural gravel bar immediately to the south of the City of Barrow.

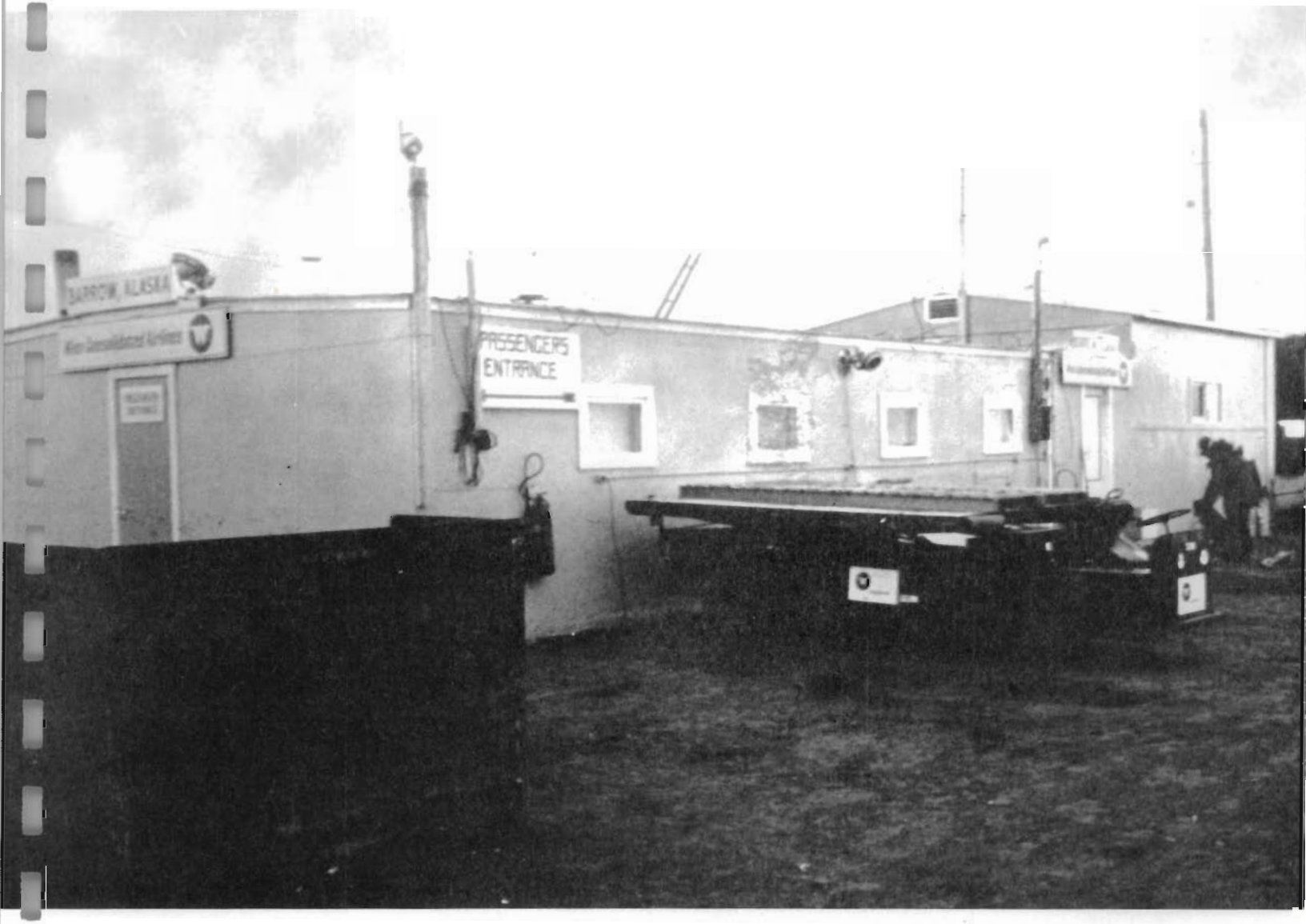
There is also an airstrip at the Navy base camp. This field is some 5,000 feet long and is steel-plank surfaced.

It seems rather inefficient to have two substantial airports in the Barrow area. The Navy recently completed a $1.7 million aircraft maintenance hangar at its airstrip. This hangar is capable of handling planes up to a C-130. Although Barrow's airport has a longer runway, it has no hangar or aircraft maintenance facilities. If a plane becomes disabled at the Barrow airport, the $1.7 million maintenance facility five miles away is just about useless.

The military airstrip is close to the Chukchi Sea and vulnerable to storm damage. During the 1963 storm, flooding destroyed over 70 percent of the airstrip, according to the Corps of Engineers.

Since air transportation is extremely important to both the Navy facilities and the city, every consideration should be given to developing the Barrow airport as the prime facility in the region. This would be in the best interests of both the Navy and the city.

While the Barrow airport isn't exceptionally bad or good on the amount of flights cancelled, it has poor navigational aids for a facility of its size. The main aids are low frequency nondirectional beacons. The runway is lighted to aid in visual navigation. According to the Federal Aviation Administration, a VORTAC system would be a major improvement. It would provide



Economic Development Administration

Terminal building at the Barrow airport.

enroute aid and assist in instrument approaches. It might also lower the minimum descent figures which, according to the FAA, are a 460-foot ceiling and one-mile visibility for smaller planes and a 500-foot ceiling and 1½-mile visibility for larger planes.

Fuel is a major problem. There is no commercial fuel dealer operating at the airport. Wien jets usually dump excess fuel in storage tanks and replenish empty tanks from the same source.

It seems apparent that additional navigation systems and a fueling capability are needed to make the airport a major transportation hub on the North Slope. A maintenance and storage hangar would also enhance the airport.

The Barrow airport is obviously much too close to the town. Development has increased rapidly to a point where some houses sit almost on the approach aprons. Expansion of the airport to the north is almost impossible. Any major fueling development would be a serious safety hazard with so many houses around.

An ideal plan would be to separate the functions of the airport into industrial and nonindustrial. Industrial development for heavy freight handling, warehouses, fueling, major hangars and repair shops and other uses should go to the south of the runway near a new approach apron. Military needs could also be served in this area. (See the proposed land use map on page 67 .) Passenger traffic and light freight should continue to be routed through the north side of the existing apron. Expansion of the extremely inadequate terminal facilities should take place in this area.

The airport is the major year-round link with the outside. Its development should be well-planned in close cooperation with the city leaders. The community should do more to promote its airport to the North Slope oil industry and other parties interested in mineral and related economic development in the Arctic.

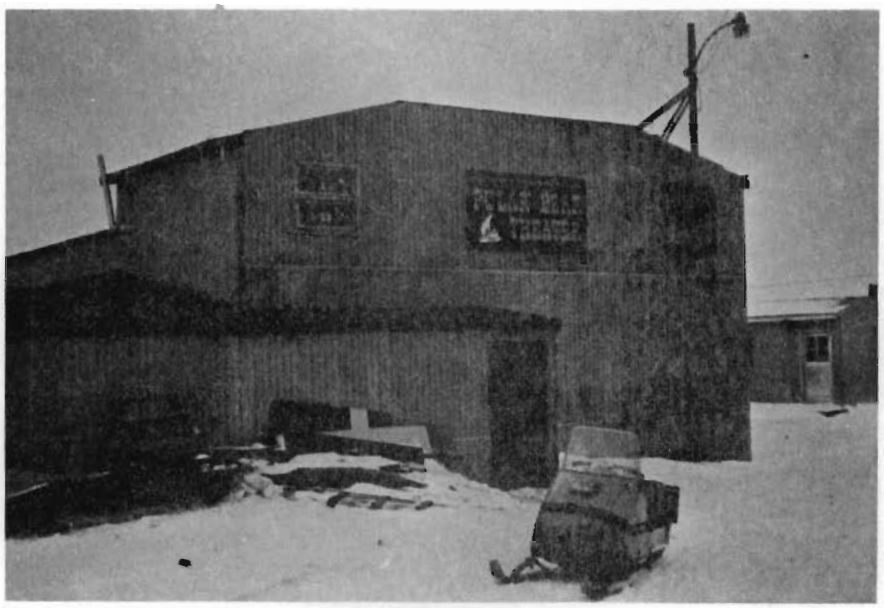
Barrow is in a strategic location close to the major air routes over the North Pole. Long-range planning should consider the development of an international airport and a polar navigation and rescue capability in the Barrow area.

Recreation

There is more to do in Barrow than in many other Native Alaskan communities, yet perhaps the most valued form of recreation is getting out of town. Some of this may be due to the traditional mobility of the Eskimo. Anthropologist Norman Chance made the following observations on Eskimo recreation:

> *If getting away from one's home is an important form of relaxation among the Eskimo, a trip away from the village is even more enjoyable. The common distinction made between 'recreation' and 'work' is nowhere as pronounced among the Eskimo. Trips away from the village may have as their prime purpose hunting, checking the fish net, collecting snow from ice flows for drinking water, and doing other useful activities, but camping trips and extended boat rides are likely to be perceived as a 'vacation' or 'rest'. Therefore they are an attractive break in the day-to-day round of household activities.* [1]

1. *The Eskimo of North Alaska*, p. 52.



Alaska State Housing Authority

Alaska State Housing Authority

Polar Bear movie theater under construction early in 1969 (above) and new skating and hockey rink (below).

Barrow has two movie theaters. One, the Polar Bear, offers relatively recent movies, sometimes before the same movies reach Anchorage and Fairbanks. This is possible partly because the theater uses 16-millimeter films and is on a separate distribution system. The Polar Bear holds dances after the movies and it even has its own live rock band.

There are two pool rooms in Barrow and several soda fountains and coffee shops for the young people. The town voted wet last fall and bars and/or liquor stores may open up in the future.

But despite the relative abundance of commercial facilities, Barrow offers little in the way of free recreation. There are no parks and the Youth Center is overburdened as a community hall. While some planners say that parks don't make sense in the Arctic, the residents of Barrow, in particular the young people, don't seem to be aware of this. Children can be observed playing outdoors in almost all kinds of weather.

Several locations for outdoor parks and mini-parks are suggested in the land use plan on page 67 . Some public park space in Barrow might be built so that a large snow drift would be created. This could be used by the children for sledding, sliding, etc.

While the BIA school has a gymnasium, much more in the way of indoor sports facilities is needed. A swimming pool would be extremely popular in Barrow. Early in 1970 the Barrow Jaycees, in cooperation with the BIA, opened a hockey and skating rink in a small quonset hut near the school. This facility is already heavily used, but it is inadequate for a top quality hockey program. As one of the hockey coaches said, "We are not very good at speed skating, but we sure know how to turn."

At the Interagency Conference held in Barrow in February, 1970, the Barrow Jaycees presented the following resolution:

> *That the Barrow Jaycees be recognized as a participating partner in a joint Federal-local effort to provide the youth and general population of Barrow with an indoor sports and recreation facility.*
>
> *That current Federal programs and agencies be researched and formal requests be made for financial assistance.*
>
> *That the anticipated uses of this facility would include ice skating, hockey, curling, indoor track and field, indoor playground and indoor community festivals.*
>
> *That a round (geodesic) or rectangular structure 200' in diameter or 125' x 200' be constructed for this purpose.*
>
> *That sufficient room for spectator seating be included to insure revenue from competitive events (such as hockey) that would be applied to costs of utilities and maintenance.*

The community should support efforts such as the Jaycees', and federal and state agencies should be approached with a total inventory of Barrow's recreational needs and proposals. Agencies such as the Federal Bureau of Outdoor Recreation should be encouraged to tailor their programs to better meet the severe environmental conditions in Barrow. Unless superior recreational opportunities are provided in Barrow, the community will probably experience a rise in social problems and out-migration.

Water

The availability of clean, fresh water is taken for granted by many city dwellers. In Barrow it is a constant struggle to provide for the minimum water needs of community residents. There is no running water system, except in the federal compounds. The two major water sources are a shallow Arctic lake and a saline lagoon.

Emaiksoun Lake, approximately four miles from the city, has a road leading to it and is used as a community water source. There is a commercial water and ice hauling service in town. Water delivered to a house costs about six cents per gallon. Ice costs about 35 cents per cubic foot. In winter, blocks of ice are often stored in front of many homes where they are subject to contamination by dogs, etc.

The mayor of Barrow complained that Emaiksoun Lake may be contaminated because it is downgrade from a former dump area. So far, the Public Health Service has not commented on this particular situation. PHS officials have said, however, that surface water supplies can be dangerous to health without proper treatment.

The cost of water in Barrow is fantastic, compared to Fairbanks. Five thousand gallons of water costs about $10 in Fairbanks. In Barrow the same amount costs $300. While some householders haul much of their own water to save money, the community water supply is of questionable quality and its high price contributes to a number of local health and sanitation problems.

The Bureau of Indian Affairs and the Public Health Service obtain their drinking and washing water by distillation. The present capacity of the utilities plant is about 600 gallons per hour, which just about satisfies the demand from the federal installations. Water lines run through heated utilidors. Saline water is used to flush toilets and for fire fighting.

A flash evaporator will be installed in 1970. This will double the water supply. The flash evaporator will use waste heat from the gas turbine generators. It costs about eight or nine cents per gallon to distill water. The BIA should seriously consider bringing in more flash evaporators to further increase the water supply and possibly be in a position to share some of it with the community.

According to the Public Health Service:

> *Distilled water is not the optimum for water supply. It is expensive, equipment requires considerable maintenance and the water is corrosive.*[1]

The foreman at the Barrow distillation plant agreed with this evaluation. He said that the water source for the plant, Isatkoak Lagoon (sometimes called Nerravik Lagoon), is high in iron and other mineral content. This means that the distillation equipment becomes caked with scale and has to be cleaned at least twice a week.

A long-range plan for Barrow must evaluate the total water needs of the community. Some authorities have said that Isatkoak Lagoon is insufficient to be the sole water source for the community. It was dammed in

1. U.S. Public Health Service, Office of Environmental Health, "Barrow Sanitation Facilities Study," Anchorage, Alaska, June, 1969, p. 3.

1963, increasing its depth from seven feet to an average of 10 feet. This made about 78 million gallons of water available under six feet of ice cover in the winter, according to PHS.

It was anticipated that cutting Isatkoak Lagoon off from the ocean would eventually allow fresh water runoff to convert it to a fresh water lake. When the dam was constructed, there were about 14,000 parts of salt per million parts of water. Unfortunately, the salt content is still high. In 1966 it was 8,000 ppm and in February, 1968 it was 4,300 ppm.[1] According to PHS standards for drinkable water, the salt content should be only 350–400 ppm.

The PHS Office of Environmental Health recommended that Barrow pump out the water from the bottom of Isatkoak Lagoon each year before the ice thaws. Since salt concentrates in the water under the ice, annual pumping would be a good method of gradually purifying the lagoon.

According to the Public Health Service, wells are not feasible as a source of drinkable water. The permafrost extends to a depth of over 1,300 feet in some places. Below this level there appears to be a significant amount of seepage from the salty waters of the Arctic Ocean.

It is beyond the scope of this plan to recommend one particular solution to the water problem in Barrow. Such a decision will have to involve detailed engineering studies and economic analyses costing up to $100,000. However, there appear to be some promising alternatives involving constantly circulating heated water systems which would minimize the danger of freezing. One, recommended by PHS, involves further usage of Isatkoak Lagoon and the following suggestions:

1. *That Nerravik (Isatkoak) Lagoon be used as a water source for the community with conventional treatment – filtration and chlorination.*

2. *That facilities be provided for water heating and circulation.*

3. *That water and sewer lines be installed in insulation in lieu of utilidor type construction.*

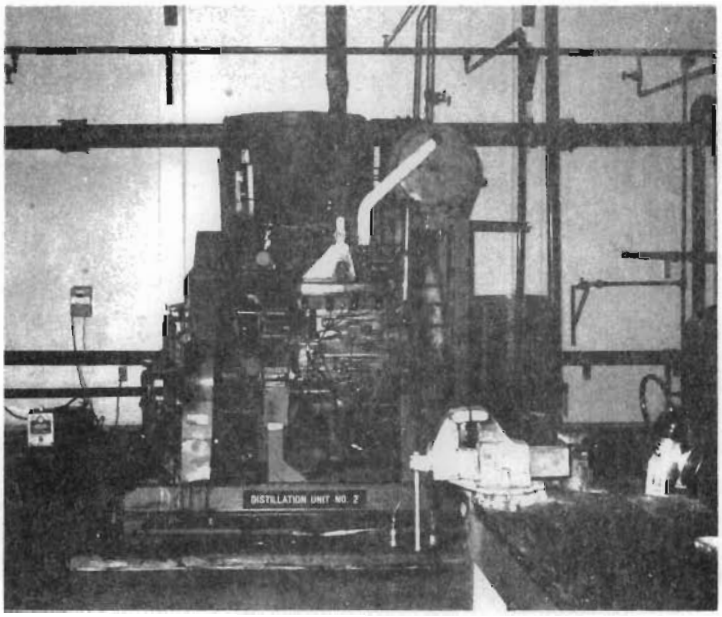
4. *That low pressure reverse osmosis units be installed in each home to provide potable drinking water.*

5. *That the waste water from the reverse osmosis units in each home be periodically flushed through the sewer system by a siphon arrangement to minimize freezing in the sewer lines.*[2]

It is interesting to note that this proposal, and all other such proposals, anticipate the provision of a sewer system. (See the next section on sewers.) Both sanitation facilities must be developed to produce a workable system in Barrow. The PHS proposal is based on 300 houses, which would be almost adequate at the present but far short within the next five years. The PHS proposed water

1. Ibid., p. 4.
2. Ibid., p.4.

Alaska State Housing Authority



Alaska State Housing Authority

Blocks of ice are stored outside Barrow houses in winter. They are melted to provide fresh water (above). Saline water is distilled to provide fresh running water to the federal housing compounds in Barrow (below).

and sewer lines do not cover all of the existing developed area in Barrow and Browerville. (See the map on page 137.)

The cost of the PHS proposal, including a sewage collection line, engineering and contingency costs, was estimated to be about $3.2 million, or about $10,600 per unit. Additional money would be needed to extend the lines to cover all development in Barrow and Browerville.

Several questions about the feasibility of this project include the limited capacity of the lagoon and the rather minimal output from reverse osmosis units. These units might produce only 10–20 gallons of water per day, which would hardly be enough for washing. Use of this system would be primarily for drinking and cooking water.

Another alternative considered by PHS involves Ikroavik Lake which is about five miles from Barrow. This lake reaches a depth of 15–16 feet and it is the largest fresh water lake in the region. The Navy is also interested in this lake and the suggestion has been made that joint development of a water distribution system take place. Navy planners say the lake has ample water to serve both the city and the camp. The lake is near the gas wells, so water could be heated for transmission to the city via insulated pipeline. Desalinization would not be required. Electrical power is available to run the pumps.

The Public Health Service estimated the cost of this project for the city would be about $4 million, including sewage collection, engineering and contingency costs. This would be over $13,000 per unit. Preliminary estimates for a Navy project from the same lake come to $3 million. Hopefully, a joint development of Ikroavik Lake would reduce costs for both parties.

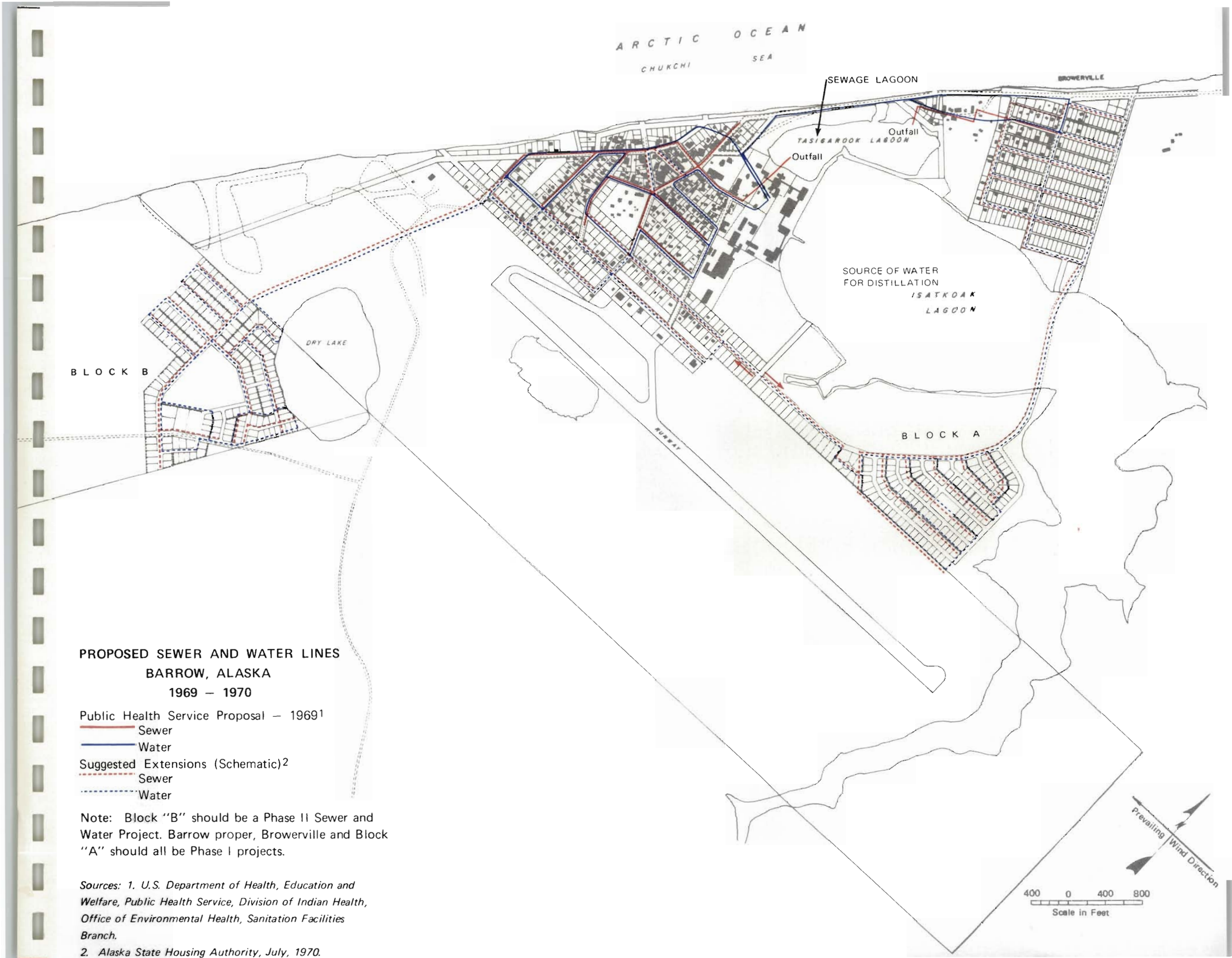
Until some public water system is developed in Barrow, the BIA should work with PHS to make a public washhouse available. Such a facility could contain wash basins, showers and even some automatic clothes washers and dryers. Barrow is just too large to continue with its primitive sanitation facilities. The federal agencies should support such a move, even if it means closer rationing of the water supply for their own employees. Nurses, doctors and teachers are usually experts in the field of personal hygiene. Therefore, it seems ironic that these professional personnel have the best and most abundant supply of water while the Natives who really need it struggle for every gallon.

Sewage

With the exception of the federal compounds, all homes in Barrow handle their sewage with chemical toilets or "honey buckets." The Public Health Service, through Public Law 86-121, assisted the community in starting a pickup service of honey bucket and solid wastes in 1969. At the time of this writing, however, the service had been discontinued because people wouldn't pay their bills and the contractor went out of business. City leaders hope to get it started again in the summer of 1970.

If the city obtains a liquor license, it could take away liquor privileges from any resident who didn't pay his waste pickup bill. This would help to ensure payment and make future pickup operations more economically feasible.

Honey bucket residues are usually dumped in the South Salt Lagoon. During summer, when snow machines can't be used to haul full honey buckets several miles out to the lagoon, human wastes are sometimes dumped around the town.



PROPOSED SEWER AND WATER LINES
BARROW, ALASKA
1969 – 1970

Public Health Service Proposal – 1969[1]
Sewer
Water
Suggested Extensions (Schematic)[2]
Sewer
Water

Note: Block "B" should be a Phase II Sewer and Water Project. Barrow proper, Browerville and Block "A" should all be Phase I projects.

Sources: 1. U.S. Department of Health, Education and Welfare, Public Health Service, Division of Indian Health, Office of Environmental Health, Sanitation Facilities Branch.
2. Alaska State Housing Authority, July, 1970.

The BIA and PHS facilities in the city are on a sewer system which provides oxidizing treatment and bacterial digestion. The treated sewage is pumped into Tasigarook Lagoon which opens into the ocean and which is separated by a dam from the water source in Isatkoak Lagoon. BIA officials say that the treated sewage is drinkable when it arrives in Tasigarook Lagoon. However, the sewage treatment plant is sometimes closed for repairs or cleaning. During these periods the raw sewage goes directly into the lagoon.

The BIA sewage system uses the same heated utilidors which carry the water lines. The capacity of the treatment plant is 55,000 gallons of effluent per day, which is more than adequate to serve the BIA and PHS facilities, according to plant spokesmen.

Apparently all the honey buckets in Barrow could be collected and dumped into the BIA's sewage treatment equipment. However, one official said that the chemicals used in honey buckets would make it impossible to treat the residue with bacteria. All sewage is ground up before it is treated in the BIA plant. Thus, honey bucket residue would also have to be ground up. The plastic bags which line the honey buckets could hinder the sewage treatment equipment.

The PHS sanitation system alternatives outlined in the previous section are based on the assumption that initially the sewage would not be treated. It would run directly into Tasigarook Lagoon. With recent federal emphasis on antipollution efforts, it is likely that a PHS-sponsored project in the future would involve additional expenses connected with sewage treatment. Tasigarook Lagoon should be analyzed as a potential sewage lagoon. This would involve closing off its outlet to the ocean and the possible installation of a pumping and circulation system.

According to PHS estimates, a sewage collection system of insulated mains would cost about $1.2 million for 300 houses. Under this system, both Barrow and Browerville would run their sewage into Tasigarook Lagoon at separate points. If and when a single sewage treatment facility became available, additional pipes would have to be installed to bring in the Browerville sewage.

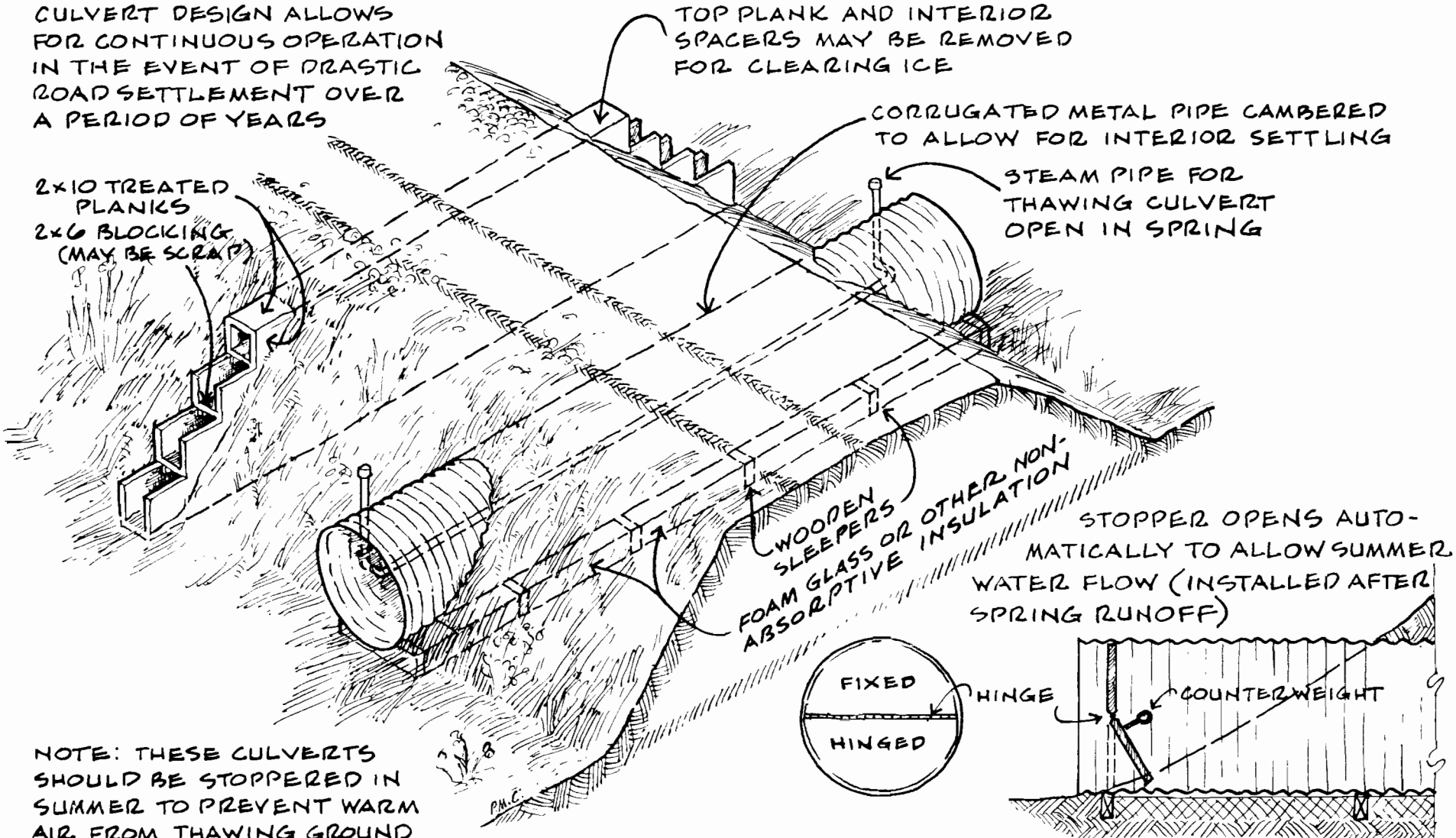
The Navy has tentatively programmed a sewage treatment lagoon for fiscal year 1972. This is to comply with a federal order requiring secondary treatment of sewage at all federal installations. An aerated lagoon, using a system of plastic air distribution tubing laid on the lagoon bottom, has been in satisfactory operation for some time at Fort Greely near Fairbanks. Barrow and the Navy might be able to cooperate on mutual usage of such a facility.

The technical means to solve Barrow's sewer and water problems seem to exist. Money is the big obstacle. The final solution will likely be beyond the means of the Public Health Service. Currently, the Barrow project has only 45th priority in the PHS program.

PHS has a backlog of some $43 million in projects to provide Native Alaskan communities with adequate water supply and waste disposal facilities. However, yearly funding for these projects is running well under $1 million. PHS officials said that a special Congressional appropriation would be needed to finance a project in Barrow. Things are so tight that no construction work will be accomplished on the PHS Kotzebue water project in 1970.

The 1964 plan for Barrow, prepared by the University of Alaska, concluded that it just wasn't financially possible to install a water and sewer system in the community. Now, six years later, Barrow's continued rapid growth

STORM SEWER DIAGRAM



NOTE: THESE CULVERTS SHOULD BE STOPPERED IN SUMMER TO PREVENT WARM AIR FROM THAWING GROUND BELOW.

FRONT

SIDE (SECTION)

SUGGESTED STOPPER

makes such a system a necessity, both from a health and environmental standpoint.

The matter is so important that it deserves a special interagency conference in Barrow. All agencies which could financially assist should attend. These include the Public Health Service, Farmers Home Administration, the Economic Development Administration and the Department of Housing and Urban Development. The State of Alaska should also be involved in such deliberations. Since most federally funded programs include loan payments and local contributions, the state will likely be called on to help Barrow financially qualify for a sewer and water system.

Storm Sewers

Barrow's major and minor streets are built up on several feet of gravel laid over the tundra. While this is necessary to prevent the roadways from sinking, there is no system of storm sewer drainage. The raised streets thereby serve as dams during the summer and water remains in "lakes" around various houses.

During the early summer breakup, streams of undirected runoff water cut across and through roadbeds, making vehicular traffic extremely uncomfortable and hazardous.

It has been suggested that the entire developed area be graveled over to prevent water from settling around homes. But a final solution will involve a system of storm drains. Recommendations to this effect were made in the 1964 Barrow Plan.[1] (See the illustration on page 139.) These recommendations should be implemented.

Refuse Disposal

> *Again, the need for suitable village waste disposal facilities was noted, pointing out the unsightly, insanitary, and unsatisfactory conditions that now exist. It was also pointed out that while the village contributes to the sanitation problem, the Government itself has been the worst offender in the disposal of waste and trash and has built sizable dump areas that are a disgrace to the Barrow area. In this connection, everyone was in agreement that no single Government agency in Barrow could be proud of its efforts in cleaning up the debris. It was also agreed that each of the agencies concerned should be making every effort to improve the sanitation facilities.*[2]

Both the City of Barrow and the Navy camp use South Salt Lagoon, a body of water located several miles from the city on Navy property, to dump their refuse. There is a burning area adjacent to the dump site. Ash residue and nonburnables are pushed out into the lagoon as fill. There is usually no earth cover material utilized in the operation. Many Barrow residents also have barrels in front of their homes where paper, cardboard and similar refuse are burned.

1. *Barrow Community Development Study*, pp. 49–50 and 63.
2. Minutes of the Interagency Conference on Barrow Gas Facilities held in Albuquerque, New Mexico, September 7–8, 1966, p. 13.

Alaska State Housing Authority

This dump is used by both the city and the Navy camp.

At the time of this writing, it was each resident's obligation to dispose of his own refuse. It has already been noted that the city started a pickup service in 1969, but this was discontinued later in the year when the contractor was unable to obtain sufficient payment by householders to stay in business.

Some of the problems with the existing dump are listed below:

> *The burning dump presents an unsightly appearance, and the wind spreads paper, ashes and litter over a large area. The dump also contributes unpleasant odors, and adds to the problem of air pollution during periods of intense atmospheric inversion. The large quantities of scrap metal present in the salt lagoons have discolored the water with corrosion products. Litter, scrap metal, and many barrels are scattered over a large area, giving the appearance of a very primitive type of existence. The disposal practices are also considered to present a serious potential health hazard, especially during the summer months.*[1]

Generally, the solutions offered for disposing of the area's solid refuse tend to favor enclosed controlled incineration. There is some concern that improper incineration could contribute to air pollution and ice fog conditions, but there doesn't seem to be any real alternative. A typical sanitary land fill operation probably wouldn't be practical in permafrost. The following incineration proposal was presented at the 1968 Barrow Interagency Conference:

> *The only practical solution for disposal of burnable wastes is by enclosed controlled incineration. It appears practical that one large incinerator could effectively dispose of wastes from all agencies in the Barrow area, including the village. As BIA and the village will be the major users, it is recommended that BIA sponsor design and construction of such an incinerator, with cross-service agreements to help amortize construction and maintenance costs.*[2] *(Underlining added.)*

At the time of this writing, one thing was certain – that the federal installations in and around Barrow would have an incinerator by the end of 1972. This is to comply with recent federal antipollution laws.

It is not known where this facility will be located or whether the City of Barrow will be allowed to participate in its construction and use. The Navy and Air Force are presently working out these details. A single incineration plant for the entire area should be one of the priority topics at future interagency conferences. Refuse disposal is definitely a regional problem which demands a regional solution.

Electricity

Barrow's electrical power is generated at the BIA utilities plant which has two 750-kilowatt gas turbines, plus 1,150 kilowatts in standby diesel generators. The BIA provides power for the various federal compounds in Barrow and also sells it to

1. Interagency Conference on Barrow, "Sewage and Refuse Disposal at NARL Barrow," Seattle, Washington, November 20, 1968, p. 1.
2. Ibid., p. 1.

Table 20
MONTHLY COST OF ELECTRICITY
BARROW, ALASKA
1970

Residential Service		Commercial Service	
Kilowatt Hours Used	Net Bill	Kilowatt Hours Used	Net Bill
60 (Minimum per month)	$9.00	120 (Minimum per month)	$18.00
100	15.00	300	42.00
200	27.00		
300	39.00	600	78.00

Source: Barrow Utilities Incorporated.

Barrow Utilities Incorporated, a BIA-financed co-op which in turn sells it to the residents of Barrow.

According to BIA utility officials, the total daily demand runs from about 490 to 680 kilowatts, well under the capacity of the plant.

Electricity costs the average user in Barrow at least three times what it costs a similar user in Anchorage. A typical electric bill in Barrow is $40 per month for a two bedroom home. The bill would be even higher during the long winter of almost total darkness. This does not include heat which is all furnished by gas. Good artificial light and adequate electric appliances obviously enhance the physical and mental well-being of a family during the dark periods, but in Barrow total electric living is a luxury few people can afford.

The cost of power in Barrow could be reduced if the demand increased. But the local demand will increase slowly because of the high rates. One way to break this vicious circle would be for all users in the area (the Navy camp included) to buy their power from Barrow Utilities Incorporated. This would be to everyone's mutual benefit as it would lower the costs all around.

The concept of a single unified power source has been kicking around Barrow for some time. In 1966, at a Barrow Interagency Conference held in Albuquerque, New Mexico, the following statements were made:

> *. . . .the greatest responsibility of all Government agencies in Barrow should be to assist the community in the development of skills and the capability for accepting full responsibility for*

operation of utilities and other features of community activities that should normally belong to the people themselves.

. . .it was generally agreed that future planning for Barrow should look towards the possibility of a single source of power generation with distribution by private concerns or independent Government agencies, whichever is determined to be the most economical.[1]

It now seems like the idea of a single power source is almost dead. In the fiscal year 1972 military construction program now before Congress, the Navy is requesting authorization and funding for a new power plant on the camp site at an estimated cost of $2,638,000. The capacity of this plant will be about 3,000 kilowatts.

Apparently none of this power will be available to the community, even on an emergency standby basis. The Navy has no plans to connect with the City of Barrow's power system to provide mutual backup in case one or the other system fails.[2]

Future interagency conferences should re-evaluate the total regional power needs in Barrow and try to come up with meaningful recommendations on methods of reducing the inefficiency of separate federal and local systems.

Natural Gas

Since it is the northernmost city in the nation, Barrow is especially fortunate to have natural gas available for heating purposes. Although the Navy camp has been using gas for heating since 1949, it was not until 1958 that five government agencies in the city were able to gain access to the supply.

The residents of Barrow were deprived of this relatively inexpensive source of fuel even longer. In January, 1960 there was a fuel crisis in Barrow as the city ran out of fuel oil. The Alaska Air Command had to fly in more fuel. This was at the same time as the Navy and other federal agencies were using natural gas from their private pipeline. Congress passed a special law in 1963 which finally permitted the local people to use the gas.

Although heating costs are still high for the average Barrow resident, they have come down since the switch from oil to gas. Before gas was available, it was estimated that approximately one fourth of the community's income was spent on fuel.[3] Now the average gas bill is about $41 per month.[4] This is about 6 percent of the average monthly income.

The gas supply in the Barrow field was summarized at the 1968 Interagency Conference in Seattle:

Present peak consumption of 2,000 MCF (thousand cubic feet) per day is met with a capability to produce 3,400 MCF

1. Minutes of the Interagency Conference on Barrow Gas Facilities, p. 12.
2. Personal communication from the Navy planner at the Naval Arctic Research Laboratory, April, 1970.
3. *Barrow Community Development Study*, p. 42.
4. ASHA Survey, December, 1969.

a day. Well No. 7 was drilled in 1968 and additional wells are to be drilled in 1969, 1970, and 1971 to ensure adequate gas supplies. Reserves in the field are estimated to be adequate for fifteen years.[1]

It is likely that commercial development of North Slope oil and gas fields will offset any depletion in the reserve of the Barrow gas field. Distribution costs may go up if and when local supplies become exhausted. The gas supply should be closely monitored during the next five years to allow ample time for new sources to be developed if necessary.

During fiscal year 1968, the total consumption of gas was shared by the following consumers:

Military	57 percent
BIA Complex	23 percent
Barrow Utilities Incorporated (City)	20 percent

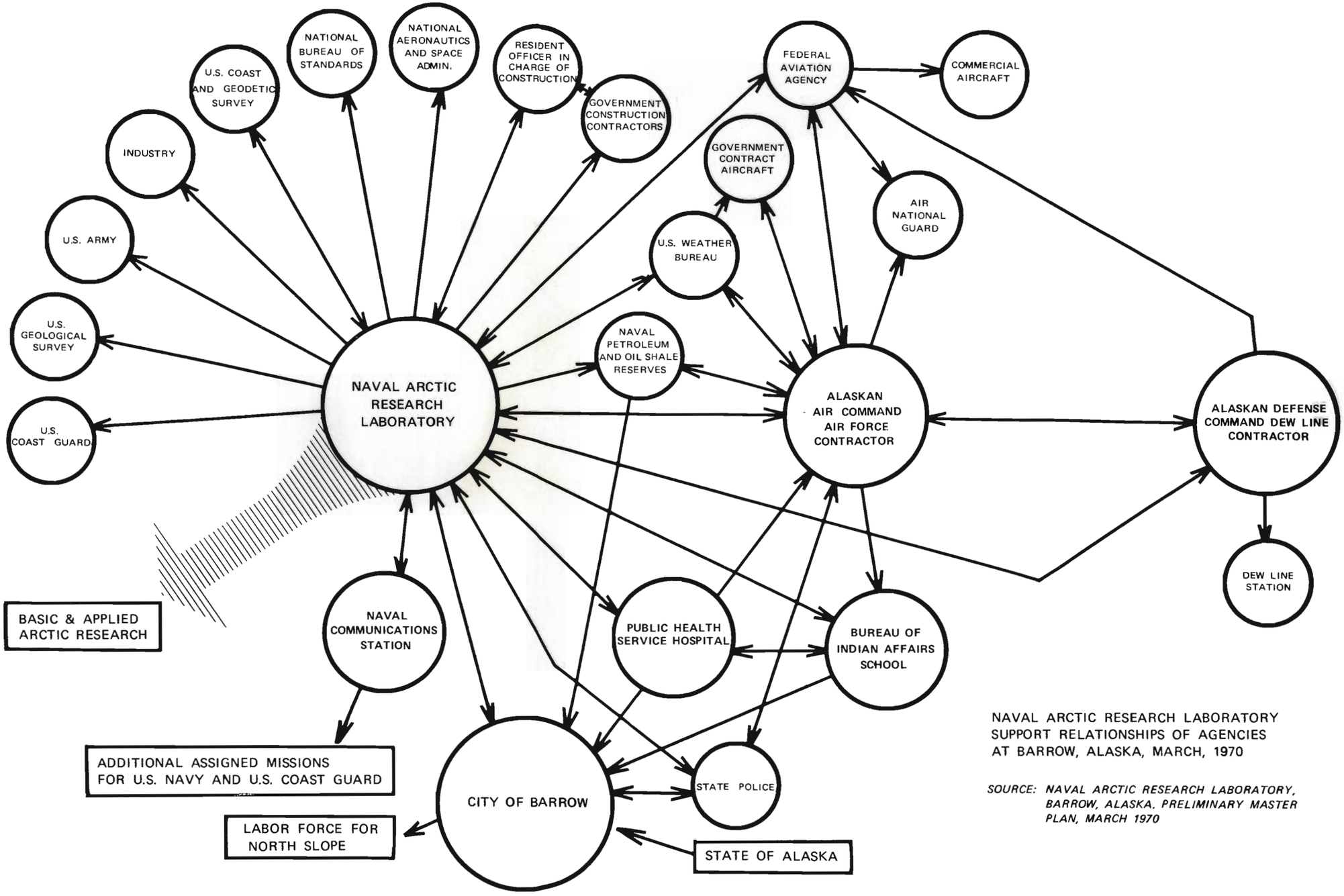
One serious problem is that there is no interconnection of the gas lines serving the Navy camp and the city. (See the map on page 59.) In the event that something happened to the Barrow line, the community would be without heat. While the military and the BIA have fuel oil reserves, most Natives have no reserve fuel for emergencies.

Early consideration should be given to providing an interconnecting line between the City of Barrow and the camp, thus providing a source of emergency gas to all users in the area. This idea has been offered at every interagency conference held during the past few years, but so far neither the BIA nor the Navy has come up with funds for such a project.

There is also a problem with the gas distribution system within Barrow. The lines were installed on a "temporary" basis on cut-up halves of oil drums. This was contrary to the 1964 Barrow plan which recommended burying the lines under gravel roadways or in connection with a sidewalk system. The existing gas line layout does not follow the road system. Rather, it generally runs through the middle of blocks and down the rear and side of lot lines. While it is possibly easier to service an exposed gas line, such a line is both ugly and vulnerable to damage from snow machines and other vehicles. It is also a hazard to pedestrian traffic. The line should ultimately be buried in accordance with the 1964 plan.

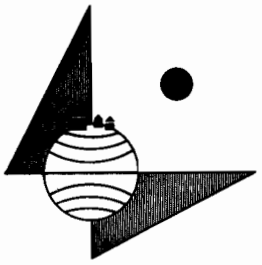
1. Remarks by Mr. E. P. Bowler, Office of Naval Petroleum and Oil Shale Reserves, at the Interagency Conference on Barrow held in Seattle, Washington, November 19–20, 1968.

Barrow As A Federal And State Compound - Coordination And Participation



NAVAL ARCTIC RESEARCH LABORATORY
SUPPORT RELATIONSHIPS OF AGENCIES
AT BARROW, ALASKA, MARCH, 1970

SOURCE: NAVAL ARCTIC RESEARCH LABORATORY, BARROW, ALASKA. PRELIMINARY MASTER PLAN, MARCH 1970



BARROW AS A FEDERAL AND STATE COMPOUND – COORDINATION AND PARTICIPATION

Background and Short-term Recommendations

Information on the various federal and state agencies which work in, around and on Barrow can be found in almost every section of this plan. This section presents an overview of the situation, an updating of previous coordination efforts and recommendations for future coordination and local participation.

During the past six years, two publications have documented the lack of interagency coordination and local participation in Barrow and three interagency conferences have attempted to solve the problem. (See table 21.) While this type of activity has resulted in somewhat improved lines of communication, it has not provided any lasting solutions to the basic problems.

Three general trends emerge from the information presented in the table. First, the geographical location of interagency

Table 21
INTERAGENCY CONFERENCES AND COORDINATION DOCUMENTS IN AND ON BARROW, ALASKA
1964 – 1970

Conferences

Dates	Place	Number of Agencies Attending	Local Native Representation
September 7–8, 1966	Albuquerque, New Mexico	7	No
November 19–20, 1968	Seattle, Washington	7	No
February 10–13, 1970	Barrow, Alaska	14	Yes

Coordination Documents

1. E. F. Rice, J. Ronald Saroff and William B. Fuller, *Barrow Community Development Study*, University of Alaska, College, Alaska, March, 1964.

2. Alaska State Housing Authority, *Barrow Coordination (Draft)*, Anchorage, Alaska, January, 1970.

conferences on Barrow has moved slowly but surely to Barrow. Hopefully, now that the agencies have finally met together in Barrow, they will continue to locate their major conferences in the community. This is the only way to achieve maximum community participation.

Second, both coordination documents have come about as the result of City of Barrow planning projects. The 1964 document was actually a community development analysis and plan, but it gave substantial attention to interagency coordination.

The 1970 draft coordination document was prepared as a preliminary part of Barrow's present 701 Planning Project. While limited reference copies of the original draft are available from the City of Barrow and from the Alaska State Housing Authority in Anchorage, this comprehensive plan contains the final updating and revisions in the areas of coordination and participation.

The third trend is toward local community control of and/or participation in the interagency conferences. The February, 1970 Interagency Conference was the first to be called by the City of Barrow. The conference in 1966 was called by the BIA and the one in 1968 was called by the Navy.

The Navy plans to call another interagency conference at Point Barrow in November, 1970. The City of Barrow will be invited. The conference will be held in conjunction with the release of the master plan for the Navy lab and camp.

Unfortunately, ASHA's contract with Barrow expires at the end of June, 1970 and the final planning document will probably be printed in August. It would aid in interagency coordination if the Navy, ASHA and the City of Barrow could get together with their various plans during the summer, before the city's plan reaches the final printing stage.

The problem of agency coordination in Barrow is complicated by the great number of fingers in the pie. The Navy Petroleum Reserve Number 4 completely surrounds the City of Barrow. The Naval Arctic Research Laboratory and the Point Barrow Base Camp occupy most of the land north from Browerville to the Point. The camp and lab are the major employers in the area. But there is an almost infinite number of related agencies and functions in this complex alone. (See the illustration on page 148.)

Within the City of Barrow, the two major federal agencies are the Bureau of Indian Affairs (BIA) and the Public Health Service (PHS). The Weather Bureau is also an important federal agency, especially from the point of land use. Other federal agencies, such as the Bureau of Land Management and the Corps of Engineers, do not maintain any facilities in Barrow but nevertheless have significant local impact.

A list of the major federal and state agencies involved in Barrow is contained in the appendix starting on page 155. This list also contains addresses and telephone numbers where such information was available.

Compared with federal activity in the area, the state's involvement in Barrow has been rather minimal until recently. The construction and maintenance of the airport by the State Division of Aviation, the new Barrow welfare office, the proposed enlargement of the State Trooper function out of Barrow and the proposed takeover of the local BIA schools by the state all testify to increasing state activity in the community. However, without proper coordination and

Table 22
PROPOSED MILITARY CONSTRUCTION PROGRAM
NAVAL ARCTIC RESEARCH LABORATORY
BARROW, ALASKA
FISCAL YEARS 1967–75

Fiscal Year	Project	Quantity	Unit Meas.	Cost $(000)
* 1967	Laboratory Facility	45027	SF	3000
		FY 67 TOTAL		3000
* 1968	NO ITEMS APPROVED			
* 1969	Aircraft Maintenance Hangar	33600	SF	1700
* 1969	Transmitter and Electronics Repair Building	3000	SF	285
		FY 69 TOTAL		1985
1970	NO ITEMS APPROVED			
x 1971	Electric Power Plant	3000	KV	2974
1971	Laboratory Facility, 2nd Inc.	18600	SF	1501
x 1971	Automotive Vehicle Maint. & Strg. Fac.	8000	SF	694
1971	Laboratory Facility, 3rd Inc.	9600	SF	831
x 1971	Recreation Building	18240	SF	1849
x 1971	Family Housing	30		1800
		FY 71 TOTAL		9649
x 1972	Dry Provision & Cold Storage	4000	SF	400
x 1972	Const. Equip. Maint. & Storage Fac.	8000	SF	700
x 1972	Utilidor System	5000	LF	1500
		FY 72 TOTAL		2600
x 1973	General Warehouse	8000	SF	300
1973	Animal Laboratory	3000	SF	300
x 1973	Radio Receiver Building	1000	SF	100
x 1973	Float Plane Terminal Facility	1	NA	100
x 1973	Road to Gas Well	40000	SY	400
x 1973	Boat Shop and Storage	2500	SF	100
x 1973	Water Plant	1	NA	400
x 1973	Road to Barrow	27000	SY	300
x 1973	Sewage Treatment Plant	1	NA	200
x 1973	Incinerator	2	TN	200
		FY 73 TOTAL		2400
1974	Laboratory Facility, 4th Inc.	21000	SF	1800
x 1974	Air Terminal Building	2000	SF	100
x 1974	Bachelor Civilian Quarters	65	MN	700
		FY 74 TOTAL		2600
x 1975	Water Collection System	1	NA	1000
x 1975	Automotive Vehicle Storage	4000	SF	200
x 1975	General Warehouse	8000	SF	300
x 1975	Laundry & Dry Cleaning	2500	SF	200
x 1975	Electric Power Tieline	22000	LF	100
x 1975	Fire Station	3000	SF	200
x 1975	Fire Alarm System	40	BX	100
1975	Power Line to Gas Wells	24000	LF	100
1975	Laboratory Facility, 5th Inc.	53000	SF	400
		FY 75 TOTAL		2600
	GRAND TOTAL			23960

x Projects which could possibly be jointly developed with the City of Barrow and other federal and state agencies in the area.

* Already Completed

Source: Interagency Conference on Barrow, Alaska, Seattle, Washington, November 19–20, 1968.

Note: Where the figures in this table differ from the figures presented in the text of the plan, those in the latter should be considered the most recent and accurate.

local participation, the transition from federal to state agencies could be a slow and painful process. Just because the state government is smaller than the federal government, it does not mean that the lines of jurisdiction and coordination are not complex. At the state level there are 14 major departments with 83 divisions or offices, plus the governor's office. In addition, there are 65 boards, commissions or councils which influence state policy in some manner.[1] While not all of these have a direct influence in Barrow, a significant number are involved with the community and additional ones may enter the picture at any time.

Long-term Recommendations

The report *Barrow Coordination (Draft)*, released by ASHA in January, 1970 as part of this comprehensive plan, concluded with two basic goals:

> *First, the various outside agencies must coordinate their efforts to avoid duplication and wasted effort. Second, the agencies must funnel their plans through the Barrow City Council or some other body designated by the residents of Barrow.*

The ASHA report also recommended that an interagency conference be held in Barrow. This was done in February, 1970 and it was well-attended. But the basic long-term goals of coordination and participation have not been achieved. Local citizens are still uncertain of what the agencies are up to and the agencies themselves are sometimes equally uncertain of the total picture. Outside labor is still being hired and local people are still unemployed.

Social services will need a lot of coordination and participation, at least as long as the administration of these services is divided among the BIA, PHS and the state. But a major problem area is the impact of uncoordinated agency construction projects and capital improvements. Such projects cause booms and busts in Barrow, with resulting economic and social problems.

Other sections of this plan explain in detail some of the major capital expenditures proposed for the Barrow area. The Navy alone might spend as much as $24–$26 million in the next decade. (See table 22.) The state, the BIA and PHS all have substantial projects on the drawing boards. Relocation of the Weather Bureau and improvement of the airport could cost millions of dollars.

One of the major recommendations of this plan is that all the agencies involved in and around Barrow prepare a joint capital improvements program, in close cooperation with the Barrow City Council and other local leaders. The major goal of such a program would be to stage projects so that they take place with a maximum of local labor and services. Training and manpower needs could be projected on a year-by-year basis to match the capital improvements.

Long-range plans, such as this one and the one now being prepared for the Navy lab and camp, could help guide the capital improvements program. Ultimately, the agencies, the oil companies and the City of Barrow might be able to jointly fund a Barrow regional plan, which could then be followed by a 10–15 year capital improvements program. Effective regional planning would probably be a lot easier if and

1. Robert D. Arnold, "A Survey of the Administrative Situation in Alaska as It Affects Eskimos, Indians and Aleuts," Federal Field Committee for Development Planning in Alaska, Anchorage, Alaska, August, 1969, p. 6.

when a North Slope borough is established. (See page 118.)

The Federal Field Committee for Development Planning in Alaska could offer technical expertise to help in the capital planning. It could also act as a federal "watchdog" over the various agencies to ensure compliance with the capital improvements program. State planning officials could take the same responsibility at the state level. Interagency conferences could kick off the program and help update it on a periodic basis.

Agencies might object that: (1) many of their facilities are needed immediately and (2) money not spent during the scheduled fiscal year might be lost forever. These concerns are valid to some degree. But they must be weighed against the pressing human needs of the indigenous population.

There could be many advantages in a coordinated capital improvements program, especially if all the agencies (and the city leaders) participated in and abided by the final program. Some of these advantages were outlined in the 1964 Barrow plan:

1. *As one project 'phases out,' another commences, making it possible to get maximum use of the manpower skills available.*
2. *A minimum of imported labor would be required.*
3. *Payrolls would stay in Barrow, generating local business, and benefitting local people.*
4. *Large numbers of in-migrants from surrounding areas will not be attracted to a community which later will have difficulty providing employment for those already there.*
5. *Construction costs could be lowered by reducing transportation costs, 'isolation' pay, and construction camp costs.*
6. *A reduction in local welfare levels, at least for the duration of construction.*
7. *The employment boom that occurs every summer in Barrow would not be unnecessarily heightened.*
8. *Importation of heavy equipment could be lower, as one project could use another's equipment, reducing equipment transportation and maintenance.*
9. *Lessons and techniques learned on one project could be applied to later ones.*
10. *Prosperity could be extended through many more seasons without additional dependence on welfare.* [1]

1. *Barrow Community Development Study*, pp. 27–28.

Wien Consolidated Airlines

Appendix

NAMES AND ADDRESSES OF AGENCIES, ORGANIZATIONS AND INDIVIDUALS HAVING A PARTICULAR INTEREST IN BARROW

Note: This list contains the main offices of the agencies involved in Barrow. While some of the agencies have representatives and subordinate offices in Barrow, the main sources of information are the offices listed below:

Federal	Primary Contact	Telephone Number (If available)
1. Naval Arctic Research Laboratory Barrow, Alaska 99723	Dr. Max C. Brewer Director	
2. Naval Facilities Engineering Command Western Division San Bruno, California 94066		
3. Office of Naval Research Main Navy Building Washington, D.C. 20360	Dr. M. E. Britton Director, Arctic Program	
4. Naval Communication Station, Kodiak Box 14 F.P.O. Seattle, Washington 98790	Commander J. B. Pitman	487–5812 (Kodiak)
5. Headquarters, Alaskan Command APO Seattle, Washington 98742	Colonel Maurice L. Clouser Secretary	
6. Bureau of Indian Affairs Fairbanks Agency P.O. Box 530 Fairbanks, Alaska 99701	Wallace Craig Superintendent Peter Three Stars Tribal Operations Officer	452–1245 452–1245
7. U.S. Public Health Service Alaska Native Medical Center Box 7–741 Anchorage, Alaska 99501	Warren Griffin Chief, Office of Program Planning and Evaluation Charles Bowman Chief of Environmental Health	279–6661 279–6661
8. Bureau of Land Management State Office 555 Cordova Street Anchorage, Alaska 99501	Burton W. Silcock Director George Gustafson Townsite Trustee	277–1561 277–1561
9. U.S. Department of Agriculture Soil Conservation Service Palmer, Alaska 99645	Dr. Samuel Rieger	754–3614

		Primary Contact	Telephone Number (If available)
10.	Farmers Home Administration Arctic Bowl Building 954 Cowles Street Fairbanks, Alaska 99701	Dale R. Sanner State Supervisor for Alaska	452–1004
11.	U.S. Army Corps of Engineers Alaska District P.O. Box 7002 Anchorage, Alaska 99501	Edward Curtis Planning and Reports Branch Mason Wade Flood Plain Management	752–2273 754–3114
12.	U.S. Weather Bureau Alaska Region 632 W. Sixth Avenue Anchorage, Alaska 99501	Donald M. Bergstrom Regional Engineer	272–556l
13.	Alaska Legal Services 308 G. Street Anchorage, Alaska 99501	William Jacobs Director	272–9431
14.	Volunteers In Service To America (VISTA) Box 1957 Anchorage, Alaska 99501		277–3495
15.	Rural Alaska Community Action Program, Inc. Drawer 412 ECB Anchorage, Alaska 99501	Byron Mallott Executive Director Roy Ewan Director, Community Service Corporation	279–2441 279–2441
16.	Federal Field Committee for Development Planning in Alaska 632 W. 6th Avenue Anchorage, Alaska 99501	Ben Marsh	277–8611
17.	Economic Development Administration 632 W. 6th Avenue Anchorage, Alaska 99501	Ralph Cowles	277–4046
18.	Federal Aviation Administration 632 W. 6th Avenue Anchorage, Alaska 99501	Floyd Pattison	272–5561

State	Primary Contact	Telephone Number (If available)
1. State of Alaska Local Affairs Agency Pouch AB Juneau, Alaska 99801	Sigvold Strandberg Acting Director Roy Goodman Traveling City Manager	586–6221 586–6221
2. State of Alaska Department of Education Pouch F, Alaska Office Building Juneau, Alaska 99801	Cliff R. Hartman Commissioner of Education Robert P. Isaac Assistant to the Commissioner	586–5227 586–5278
3. Alaska State Housing Authority 903 W. Northern Lights Boulevard P.O. Box 179 Anchorage, Alaska 99501	Robert H. Schenker Executive Director Earl Finkler Senior Planner	279–7643 279–7643
4. State of Alaska Department of Fish and Game 604 Barnette Street Fairbanks, Alaska 99801	John J. Burns Marine Mammals Biologist	452–1531
5. State of Alaska Department of Public Safety Pouch N, Capitol Building Juneau, Alaska 99801	Mel J. Personett Commissioner	586–5451
6. Alaska Division of Public Welfare Fairbanks District Office 604 Barnette Street Fairbanks, Alaska 99701	Freda M. Borchick Administrative Officer	452–1637
7. State Division of Aviation 4510 International Airport Road Anchorage, Alaska	Harry A. Wakefield, Jr. Director James Moody	272–1571 272–1571
8. State Department of Highways P.O. Box 1467 Juneau, Alaska 99801		364–2121

Other	Primary Contact	Telephone Number (If available)
1. Dr. E. F. Rice (Author of the 1964 Barrow plan) Box 5–266 College, Alaska		
2. Institute of Social, Economic and Government Research University of Alaska Fairbanks, Alaska 99701	Victor Fischer Director	479–7421
3. Wien Consolidated Airlines Anchorage International Airport Anchorage, Alaska		277–5501
4. Alaska Airlines Seattle – Tacoma International Airport Seattle, Washington 98158	Robert Giersdorf Vice President Traffic & Sales	
5. BP Oil Corporation 121 W. Fireweed Lane P.O. Box 4–CCC Anchorage, Alaska	F. G. Larmine Area Manager	277–1422
6. Atlantic Richfield Company 711 W. 8th Avenue Anchorage, Alaska 99501	Joseph H. Fitzgerald Manager of Community Affairs	277–5637

BIBLIOGRAPHY

Abrams, Charles, *Man's Struggle for Shelter in an Urbanizing World*, the M.I.T. Press, Cambridge, Massachusetts, 1964.

Alaska State Housing Authority, "Initial Housing Element," submitted to the Department of Housing and Urban Development, Anchorage, Alaska, November, 1969

Arnold, Robert D., "A Survey of the Administrative Situation in Alaska as It Affects Eskimos, Indians and Aleuts," Federal Field Committee for Development Planning in Alaska, Anchorage, Alaska, August, 1969.

Barrow Service Unit of the Public Health Service, "Five-Year Social Work Program," 1969.

Brewer, Dr. Max C., "Some Results of Geothermal Investigations of Permafrost in Northern Alaska," *Transactions, American Geophysical Union*, February, 1958.

Brower, Charles D., *Fifty Years Below Zero*, Dodd, Mead and Company, New York, 1942.

Chance, Norman A. *The Eskimo of North Alaska*, Holt, Rinehart and Winston, New York, 1966.

Corps of Engineers, Alaska District, "Point Barrow Beach Erosion Reconnaissance Report," Anchorage, Alaska, December 12, 1969.

Federal Field Committee for Development Planning in Alaska, *Alaska Natives and the Land*, Anchorage, Alaska, 1968.

Federal Field Committee for Development Planning in Alaska, *A Subregional Economic Analysis of Alaska*, Anchorage, Alaska, 1968.

Federal Field Committee for Development Planning in Alaska, "The Need for Long-Range Communications Development Plan in Alaska," submitted to the office of Telecommunications of the U.S. Department of Commerce, November 24, 1969.

Fitzgerald, Joseph H., "Community Development in Harmony with the Environment," a paper presented before the Arctic Institute of North America, Washington, D.C., February, 1970.

Hippler, Arthur E., *Barrow and Kotzebue: An Exploratory Comparison of Acculturation and Education in Two Large Northwestern Alaska Villages*, University of Minnesota, Minneapolis, Minnesota, December, 1969.

Hippler, Arthur E., "Some Unplanned Consequences of Planned Culture Change," Boreal Institute of the University of Alberta, Occasional Publication Number 6, Edmonton, Alberta, 1968.

Hume, James D. and Marshall Schalk, "The Effects of Beach Borrow in the Arctic," *Shore and Beach*, April, 1964.

Johnson, Philip R., and Charles W. Hartman, *Environmental Atlas of Alaska*, Institute of Arctic Environmental Engineering, University of Alaska, College, Alaska, 1969.

Klein, Donald, "Community, Who Needs It?," *Psychology Today*, December, 1969.

Rice, E. F., J. Ronald Saroff and William B. Fuller, *Barrow Community Development Study*, University of Alaska, College, Alaska, March, 1964.

Stanford Research Institute, "North Slope Transportation Problems,"(Draft) October 15 1969.

Training Corporation of America, *Alaska Regional Secondary School Implementation Plan*, Falls Church, Virginia, February, 1967.

U.S. Public Health Service, Office of Environmental Health, "Barrow Sanitation Facilities Study," Anchorage, Alaska, June, 1969.

Zelnick, Robert C., "Justice in the Bush; Part 5, A Growing Delinquency Rate," *Anchorage Daily News*, December 20, 1968.

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